United Nations E/2001/12

Economic and Social Council

Distr.: General
24 April 2001

Original: English

Substantive session of 2001
Geneva, 2-27 July 2001
Item 10 of the provisional agenda*
Regional cooperation

Summary of the economic survey of Europe, 2000

The Economic Commission for Europe (ECE) economies in spring 2001: an overview of the current situation and selected policy issues**

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* E/2001/100.

** The text of the present document is chapter 1 of Economic Commission for Europe (ECE), *Economic Survey of Europe, 2001, No. 1*. The ECE region consists of all the countries of Europe, the Commonwealth of Independent States (CIS), North America and Israel.

01-34892 (E) 060701

Introduction

1. The fragility of economic forecasts has again been highlighted by developments over the last six months. In October 2000, global economic prospects looked better than at any time in the previous 10 years: forecasts for the world economy in 2000 were being raised to some 4¾ per cent and, despite some slowing down associated with the anticipated rebalancing of output towards Europe and away from the United States of America, growth was expected to remain at about 4¼ per cent. It is now apparent, however, that the world economy peaked in the first half of 2000. One negative factor was the higher price of oil but the forecasters were correct in forecasting that this would fall back to the Organization of Petroleum Exporting Countries (OPEC) target range in early 2001. The major downside risk had been recognized for some time but was essentially unpredictable as to scale and timing — and that concerned the inevitable correction of the United States stock market bubble and of the "irrational exuberance" about the future prospects for the United States economy.

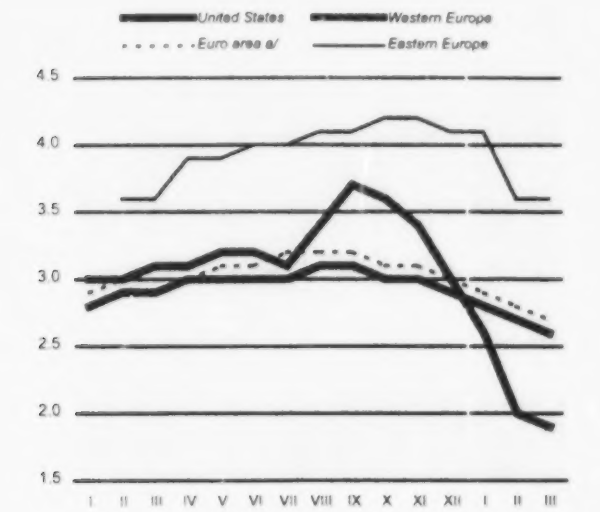
2. At the end of the first quarter of 2001, the short-term economic outlook for the Western market economies looks much less favourable than in the autumn of 2000. The main factor behind this has been the unexpectedly sharp slowdown in economic growth in the United States since the second half of 2000 and the stalled recovery in Japan. Activity in the two largest economies in the world is thus weakening rapidly or continuing to stagnate. This has started to feed through changes in net exports to other regions of the world economy. As a result, there has been a progressive lowering of growth forecasts, especially for the United States, since late 2000 (figure I).

3. In the United States, real GDP is now expected to increase by only some 1¾ per cent in 2001, a very abrupt deceleration from an average growth rate of 5 per cent in 1999 (table 1). In Japan, economic growth is expected to only slightly exceed 1 per cent in 2001 (table 1), and even that is uncertain, given disagreements over economic policy and delays in introducing another economic emergency programme. Growth forces are seen to hold up somewhat better in Western Europe. In the euro area, real gross domestic product (GDP) is currently forecast to increase by some 2.5 per cent in 2001, down from 3.4 per cent in 1999, and half a percentage point less than was being forecast last autumn. Broadly similar changes are expected for the European Union (EU) and for Western Europe as a whole (table 2). For the industrialized economies in aggregate, the average rate of economic growth is likely to be only some 2 per cent in 2000, down from 3.8 per cent in 2000 and the smallest annual increase since 1993. As a result, the prospects for economic growth in the Central and Eastern European economies, as well as the Commonwealth of Independent States (CIS) and other parts of the world economy, will also be adversely affected, leading to a mutually reinforcing process which will amplify the direct trade effects of the cyclical downturn in the United States. The upshot is that world output might now grow by only some 2½-3 per cent in 2001, down from 4.7 per cent in 1999 and considerably less than was expected in the autumn of 2000.[1]

Figure I

Real GDP growth in the ECE region in 2001: changes in consensus forecasts, January 2000-March 2001

(Percentage change over previous year)



Source: Consensus Forecast.

[a] From January 2001, including Greece.

Table 1
Annual changes in real GDP in Western Europe, North America and Japan, 1998-2001
(Percentage change over previous year)

	1998	*1999*	*2000[a]*	*2001[b]*
France	3.3	3.2	3.2	2.7
Germany	2.1	1.6	3.0	2.1
Italy	1.8	1.6	2.9	2.5
Austria	3.3	2.8	3.3	2.6
Belgium	2.4	2.7	3.9	2.5
Finland	5.3	4.2	5.7	4.0
Greece	3.1	3.4	4.0	4.0
Ireland	8.6	9.8	10.0	7.5
Luxembourg	5.0	7.5	8.1	6.2
Netherlands	4.1	3.9	3.9	3.3
Portugal	3.6	3.0	3.2	2.6
Spain	4.3	4.0	4.1	3.0
Euro area	2.8	2.6	3.4	2.6
United Kingdom	2.6	2.3	3.0	2.5
Denmark	2.8	2.1	2.4	1.8
Sweden	3.6	4.1	3.6	2.5
European Union	2.8	2.6	3.3	2.6
Cyprus	5.0	4.5	4.9	4.1
Iceland	4.5	4.3	3.6	1.3
Israel	2.2	2.3	3.0	3.0
Malta	3.4	4.0	4.3	4.3
Norway	2.0	0.9	2.2	1.5
Switzerland	2.3	1.5	3.3	2.1
Turkey	3.1	-5.0	7.0	–
Western Europe	2.8	2.2	3.5	2.5
Canada	3.3	4.5	4.7	2.4
United States	4.4	4.2	5.0	1.7
North America	4.3	4.3	5.0	1.8
Japan	-1.1	0.8	1.7	1.2
Total above	2.8	2.8	3.8	2.0

	1998	1999	2000[a]	2001[b]
Memorandum items:				
4 major Western European economies[c]	2.4	2.1	3.0	2.5
Western Europe and North America	3.6	3.2	4.2	2.1

Source: National statistics and national economic reports.
Note: All aggregates excluding Israel. Growth rates of regional aggregates have been calculated as weighted averages of growth rates in individual countries. Weights were derived from 1996 GDP data converted from national currency units into dollars using purchasing power parities.
[a] Preliminary estimates or forecasts.
[b] Forecasts.
[c] France, Germany, Italy and United Kingdom of Great Britain and Northern Ireland.

Table 2
Annual changes in real GDP in the ECE region, 1998-2001
(Percentage change over previous year)

	1998	1999	2000[a]	2001[b]
Western Europe	2.8	2.2	3.5	2.5
European Union	2.8	2.6	3.3	2.6
Euro area	2.8	2.6	3.4	2.6
North America	4.3	4.3	5.0	1.8
United States	4.4	4.2	5.0	1.7
Eastern Europe[c]	2.0	1.1	3.9	4.2
CIS	-3.0	3.2	7.4	4.2
Russian Federation	-4.9	3.5	7.7	4.0
Memorandum items:				
Europe (Eastern and Western)	2.7	2.1	3.5	2.7
Europe (Eastern and Western) and **CIS**	2.0	2.2	4.0	2.9

Source: *Economic Survey of Europe, 2001, tables 2.2.2 and 3.1.1.*
[a] Preliminary estimates.
[b] Forecast.
[c] Including the Baltic States.

I. The market economies of Western Europe and North America

A. Recent developments and the current outlook

4. In the United States, the long economic expansion, which, if maintained in the first quarter of 2001, would have lasted for 10 years, was expected to slow down in 2001 against the background of tighter monetary policy and the real-income effects of higher energy prices. In fact, a slowdown was seen as highly desirable, given that actual output had grown at a rate significantly above potential for quite some time with increasing risks of overheating and a hard landing. There were, moreover,

mounting concerns about the huge imbalances that had accumulated over the past five years as the result of an unsustainable investment and consumption boom. These were reflected in a decline of personal savings to a very low level (in fact, they turned negative in 2000), increases in corporate and personal debt to very high levels, a huge current-account deficit and, last but not least, a stock market bubble, notably, but not only, in the market for high-technology shares.

5. The orderly unwinding of these imbalances is the central assumption of the soft landing scenarios, which assume a gradual slowing down in economic expansion to a rate somewhat below potential. This in turn would spread the inevitable adjustment costs to be borne by the rest of the world over a reasonable period of time. In the event, however, there was an unanticipated abrupt cyclical downswing in the United States economy after the second quarter of 2000, a development which serves as a sharp reminder of the inherent difficulties of forecasting cyclical turning points. The investment boom in information technology (IT) equipment, a major force behind the long expansion, petered out in the face of growing excess capacity in the manufacturing sector. To this was added a sharp fall in the demand for consumer durables and for exports in the last quarter of 2000 which led to a build-up of excess inventories and a weakening of industrial activity. The reaction of the United States monetary authorities to the deteriorating economic conditions was very swift. The target for the federal funds rate was lowered in three steps by 1.5 percentage points between January and March of 2001. Against this background and the decline in actual and expected business profits, there has been a sharp decline in equity prices for a broad range of stocks in the first quarter of 2001, with adverse consequence for households' net wealth and the debt-equity ratios of the corporate sector.

6. While imbalances are more or less typical of any strong and sustained cyclical upswing — largely a reflection of overly optimistic production and profit expectations — there has been a degree of excess in the United States, especially in the financial markets, that would not have been possible without the generous credit expansion allowed by the United States Federal Reserve. But these kinds of miscalculations are always easier to diagnose ex post facto and can often only be avoided ex ante by stifling the expansion itself.[2]

7. In Japan, against a background of deflationary tendencies and increasingly pessimistic business assessments of the country's short-term prospects, the monetary authorities reverted to the "zero interest rate" policy in March 2001, a policy that had been abandoned in the second half of 2000. This shift in monetary policy has been accompanied by a marked depreciation of the yen which should, in principle, support exports and increase imported inflation. In the face of deteriorating export prospects, notably to the United States market, the corporate sector is cutting back on planned investments. Given the limited room for manoeuvre left by the near-zero interest rates, the Bank of Japan has decided that it will target the inflation rate, that is to say, it will inject liquidity — using outright purchases of government bonds — until the year-on-year rate of consumer price inflation has become slightly positive again. The Government also intends to launch a new package of measures designed to prevent the economy's sliding back into recession, but this had still not been introduced by the end of the first quarter of 2001.

8. In Western Europe, the cyclical recovery held up relatively well in the second half of 2000, but there was also a noticeable slowing in the rate of economic

expansion. The optimistic view, however, that the European economies would be largely immune to the deterioration in the rest of the global economy has been overtaken by events, as evidenced by the significant lowering of forecasts for GDP in 2001. This is also reflected in the sharp drop in business confidence in Germany, the largest Western European economy. Many forecasters now expect real GDP in Germany to increase by only 2 per cent in 2001 (see table 1), down from the 2¾ per cent forecast in the autumn of 2000.

9. It is therefore fortunate that a number of European Governments had already decided some time ago to shift to more expansionary fiscal policies, mainly by cutting income taxes in 2001. In the United Kingdom of Great Britain and Northern Ireland and Switzerland, the central banks also lowered interest rates in early 2001 to support economic activity.

10. In contrast, in the euro area, despite deteriorating growth prospects, the European Central Bank (ECB) has left its main refinancing rate unchanged at 4¾ per cent since October 2000, when it was raised by one quarter of a percentage point, just at the time when the evidence of the slowdown was becoming available.

11. A major source of downside risks to the current growth forecasts are — apart from developments in Japan — the uncertainties surrounding future economic developments in the United States. The expected annual growth rate of some 1¾ per cent implies a moderate upturn in economic activity in the course of 2001, given a statistical carry-over effect of 0.8 of a percentage point from the final quarter of 2000.[3] The current consensus of forecasts is that this will be followed by a further strengthening of growth in 2002.

12. Nevertheless, this scenario could well turn out to be too optimistic and the cyclical downturn could well be more protracted. Much will depend on the extent to which private households desire, or are forced, to adjust their expenditures (and savings) in response to the deterioration in economic conditions and the loss of financial wealth implied by the marked decline in equity prices (a fall that had still not bottomed out at the time of writing). Also, the response of business investment to the cyclical downturn is currently difficult to gauge. Relatively large margins of excess capacity in the manufacturing sector will tend to weaken the accelerator principle which links net investment to changes in output. This will add to the dampening effects of falling profits, higher financing costs associated with lower share prices and the need to reduce high levels of corporate debt. More generally, the effectiveness of the more expansionary monetary policy in the United States may be reduced in an environment dominated by excess capacity and the need for balance sheet adjustments in the private sector.

13. The need to rebuild private sector savings is the counterpart of the required United States current-account adjustment, given that the very large deficit ($435 billion or some 4.4 per cent of GDP in 2000) cannot be sustained.[4] It depends crucially on the willingness of foreigners to hold dollar-denominated assets. In a deteriorating economic environment, this willingness is likely to become increasingly stretched with increased downside risks for the dollar exchange rate. There are mixed opinions whether the continued strength of the dollar, so far, reflects its "safe haven" properties in a more uncertain world outlook or expectations that the loosening of monetary policy will lead to a rapid recovery of domestic demand; but neither scenario bodes well for the stability of the world economy. A quick recovery based on domestic demand would only postpone the

inevitable reduction of the domestic and external imbalances. This is a necessary condition for laying the foundations of a new sustainable upswing. The longer these adjustments are delayed, the greater is the probability that when they do eventually occur they will involve very abrupt changes in behaviour with a much greater risk of international financial turmoil. A reduction of the United States external deficit implies a correspondingly smaller external surplus in the rest of the world, and the major policy challenge is to reduce these imbalances with as little disruption as possible to global economic activity.

14. Given the current cyclical weakness in the United States and the chronic weakness in Japan, the adjustment process will largely depend on a strengthening of economic growth in Western Europe. Not only will this help to reduce the downside risks to global economic activity but it would match regional ambitions to turn Europe into the world's strongest economy.[5]

B. Is European monetary policy too cautious?

15. ECB is now[6] the only central bank among the Group of Seven (G-7) that has not lowered interest rates in the wake of the cuts made by the Federal Reserve. The reason for this is that the Bank still believes that the risks facing the euro area are "evenly balanced", between higher inflation and lower growth, even though the economic environment is now very different from that in which it first set its key interest rate at 4.75 per cent in October 2000. Since then, activity has slowed sharply, especially in Germany, where the prospective stimulus of tax cuts has been somewhat offset by the weakness of net exports and construction activity. Forecasts for 2001 have been generally lowered and business confidence has fallen. Most observers and forecasters are unable to see any serious inflation threat. The prospect of the large rise in oil prices triggering an upturn in inflation was dismissed by most forecasters and their prediction that the risk in oil prices would be temporary proved to be correct. Indeed the impact of higher oil prices on lowering effective demand seems to have been more important than its effect on the underlying inflation rate.[7]

16. There can be little doubt that a lowering of interest rates will be a help for economic growth. Neither of the two pillars of the ECB's monetary policy strategy stands in the way of a reduction in the interest rates. Money supply growth has been slowing down and was approaching the reference value of 4.5 per cent in the first quarter of 2001. In any case, it can be argued that the derivation of the reference value is based on rather cautious estimates of potential output growth and the trend decline in money velocity.[8] Inflationary expectations are, moreover, quite moderate. The ECB's own Survey of Professional Forecasters shows that inflation is expected to average 2 per cent in 2001, declining to 1.7 per cent by December 2001 and remaining at an average of 1.7 per cent in 2002.[9] Long-term inflationary expectations are even lower. Thus, the inflation rate implied by the difference between yields on French nominal and real (that is to say, price index-linked) bonds that mature in 2009 was only 1.4 per cent at the end of February 2001.[10] It is true that the actual inflation rate was about half a percentage point above the ECB's target rate of 2 per cent in February 2001, but the underlying core rate of inflation is well below that and there is no sign of any acceleration in prices or in average wages.

17. It may be argued that the current situation constitutes a dilemma for monetary policy because a lowering of interest rates when inflation is above target could compromise the ECB's efforts to establish its credibility. On the other hand, there is general awareness that this overshooting of the inflation target reflects specific circumstances, mainly the sharp rise in oil prices, the effects of which have already started to diminish; and in view of the deteriorating external environment, the risks to both output and inflation are tilted to the downside.

18. In any case, given the long and variable lags with which monetary policy affects inflation, the actual inflation rate is not the appropriate focus for monetary policy. The objective is to maintain price stability in the medium term and this implies the need for a forward-looking, medium-term orientation of monetary policy, which ECB itself correctly emphasized in its first monthly report at the beginning of 1999.[11] This provides at the same time a degree of discretion for the conduct of monetary policy as regards reacting to specific shocks in the short term without losing sight of the general objective of price stability. It goes without saying that this also requires the provision of clear explanations to the public why certain actions are taken or not; but, in practice, the Bank's actions appear to many observers to be more backward- than forward-looking, and too sensitive to fluctuations in monthly price changes.

19. The apparent deflationary bias of ECB arises not only from its actions but also from its terms of reference. Its target of 2 per cent inflation is asymmetric in that it is not required to take any action when the actual rate is below this for a sustained period of time (unlike the Bank of England, for example). Secondly, it has no formal responsibility for other policy objectives such as growth or employment (unlike the Federal Reserve, for example). Thirdly, there is no political influence on the setting of the inflation target, which could provide a so much broader view of policy. Finally, the Bank's target rate of 2 per cent inflation is very low, especially when the upward bias due to quality improvements and the effects of fixed base weights are taken into account.

20. In their public pronouncements, ECB officials also give the impression that they believe nothing much has changed in the past two decades as regards inflationary expectations and wage-setting behaviour. At the end of January, the Bank's focus was said to be "on avoiding possible second-round effects of the temporary increase in inflation".[12] These fears would appear to discount heavily the many structural changes that have occurred in the world and in European economies in the last two decades. As a result, disinflationary pressures are now greater than at any time since the 1930s and there is no sign of the struggle over functional income shares that triggered the wage-price spirals of the 1970s. In Europe, wage indexing has disappeared, union membership and strength have fallen drastically, and all economies are vulnerable to the intense competitive pressures from the global economy. The relation between inflation and the labour markets now appears to have reverted to that prevailing before the oil crises of the 1970s, or even earlier, given that perceptions of job insecurity in Europe seem to be greater than in the 1950s and 1960s. The examples of the United States and the United Kingdom, as well as a number of smaller European economies, suggest that expansionary policies can reduce unemployment now without setting off a new inflation; but the key appears to be the need to have a coherent mix of policies for employment and growth, not just a one-dimensional monetary policy.

21. There would now appear to be a strong case for a sharp reduction in euro area interest rates in order to tip the balance towards stronger growth in Europe and offset the effects of weaker net exports to the rest of the world. The behaviour of the euro exchange rate against the United States dollar over the last two years seems to be largely explained by capital flows responding to relative growth prospects in Europe and the United States and hence to expectations of relative stock prices. A large cut in euro interest rates is therefore likely to lead to an appreciation of the euro, encourage investment and growth, and dampen further any residual inflationary pressures in the system. (This goes against the view that it is the weakness of the euro that is inhibiting the willingness of ECB to lower interest rates.) However, as mentioned below, raising the growth rate and lowering unemployment will also require special attention to improving workforce skills, especially among the young, which in turn will probably require an increase in government spending, but this is likely to be a good investment, not least for ageing populations. One of the key lessons to be learned from the performance of the United States economy over the last decade would encompass policy's recognition of the dynamic interactions between growth expectations, fixed investment, rising productivity and employment — and mild or falling inflation rates. This is not the new economy, but an older one that was lost sight of during the crises of the 1970s and the disinflation of the 1980s.

C. Raising Western Europe's growth rate: are labour markets a constraint?

22. Whenever suggestions are made for faster growth in Western Europe, official discussions invariably stress that this will be possible only if further supply-side improvements are made. The pessimism about the potential for growth in Europe is particularly focused on the alleged lack of flexibility of European labour markets. This leads to the conclusion that any aggressive lowering of euro interest rates would simply renew inflation rather than promote growth. For a decade or more, unfavourable comparisons have been made between the United States and the European economies in respect of the ability of the latter to generate employment and lower unemployment rates: in the United States, the average unemployment rate was only 4 per cent in 2000, down from a peak of 7.4 per cent in 1992. In contrast, in Western Europe, unemployment was nearly twice as high at 7.9 per cent in 2000, but down from a peak of 10.5 per cent in 1994. Employment rose by some 15 per cent in the United States between 1991 (the cyclical trough) and 2000 (the cyclical peak). Over the same period, there was only a meagre increase in Western European employment, by 5¼ per cent, although this was influenced by the difference in cyclical positions. Compared with the cyclical low point in 1993, employment was some 8 per cent higher in 2000.

23. The standard explanation for these differences is that the United States labour market is much more "flexible" than labour markets in Europe. In the United States, hiring and firing are not hampered by complicated rules and regulations, whereas in Europe, social protection and an array of various labour-market institutions create rigidities and resistance to necessary adjustments to market forces and changes in the global economy. In Europe, gains in productivity quickly translate into higher wages for those already with jobs at the expense of profits, investment and increased employment for those unemployed. According to this view, which is shared by most

of the international economic institutions, the problem in Europe is not one of macroeconomic policy, but rather, one of supply-side rigidities, not only but especially in the labour market, hence the stress in official briefings at the recent Stockholm summit of EU leaders on the urgency for European countries to "bite the bullet of reform".[13]

24. Although this "story" about the differences between the United States and Europe is constantly repeated, it is badly flawed because it appears to be at variance with a number of key facts: in the first place, it is misleading to treat Western Europe as a homogeneous whole.[14] Labour-market performance varies considerably and there are several smaller economies (for example, Denmark, Finland, Ireland, the Netherlands and Portugal) that have performed as well or even better than the United States in the second half of the 1990s. Indeed, these economies (among others) have also outperformed the "new economy" of the United States in terms of labour productivity and multifactor productivity growth in the business sector.[15]

25. Secondly, labour-market institutions are also very heterogeneous (inter alia, among the countries just mentioned). Although some of these arrangements are associated with higher levels of unemployment — for example, high levels of benefit paid indefinitely and with no pressure on recipients to seek work or high levels of unionization with no coordinated wage bargaining[16] — many of the institutions and practices blamed for higher unemployment turn out to have little effect either way and in some cases may even have a positive effect.[17] Thirdly, there is little evidence in Europe that productivity gains have been captured by employed workers in the form of higher wages. In fact, wages in Europe, as in the United States, have lagged behind the growth of productivity in the 1990s. As is shown in chapter 2 of the *Economic Survey of Europe, 2001, No. 1*, the share of wages in national output has fallen in favour of gross profits on both sides of the Atlantic, but whereas the falling share in the United States has been associated with falling unemployment, in Europe the reverse has been the case.

26. Why should a falling wage share be associated with large increases in employment and falling unemployment in the United States and with only marginal improvements in Europe? A plausible explanation is that the stance of macroeconomic policy in the United States has provided a more supportive environment for the growth of domestic demand and, especially, of fixed investment. Confident expectations of sustained output growth created a virtuous circle of rising investment and productivity which in turn led to rising levels of real wages, profits and employment. Part of the gains in productivity was also distributed to consumers via price reductions (or smaller price increases than might otherwise have occurred). In Western Europe, in contrast, much of the 1990s was marked by fairly restrictive macroeconomic policies: fiscal policy was tight as the future members of the European Economic and Monetary Union (EMU) strove to meet the Maastricht convergence criteria and real long-term interest rates were also relatively high, falling below those in the United States only in 1997. Fixed investment did occur in Europe but it was very weak in comparison with that in the United States[18] and much of it was focused on rationalization rather than capacity expansion (or employment creation). The gains from productivity that did occur in Western Europe, which in terms of GDP per head were not very different from those in the United States (about 13-14 per cent between 1991 and 1999), went to profits (either retained by enterprises or distributed to shareholders) or to consumers in the form of lower prices (or smaller price increases than might have otherwise occurred).

27. The "defensive" nature of much European investment in the 1990s is understandable given the disappointment of expectations in the early years of the decade — when the Single Market programme was forecast to deliver an average annual rate of growth of 3 per cent over the decade — and continuing uncertainty as to whether a faster rate of growth would be cut short by an excessive concern with short-run fluctuations in the inflation rate. A key difference between the performance of the United States and that of Europe therefore lies in both the stronger rate of growth of domestic demand in the United States and the greater confidence that the Federal Reserve would not bring it to a premature halt.

28. The need for increased "flexibility" and structural change is often presented, in both Western and Eastern Europe, as an institutional or behavioural problem which must be solved as a precondition for faster rates of output growth and employment. However, this approach ignores three important points. The first is that a crucial requirement for a flexible economy and a fast rate of structural change is a high rate of gross investment. At any given time, the structure of output and employment is fixed by the existing capital stock; the rate of structural change thus depends on rates of gross investment in new equipment sufficient to employ in new sectors the labour released by declining industries or activities, to maintain reduced numbers in the latter, and to provide jobs for new entrants to the labour force.[19] In an open, global economy there will in any case be pressure on traditional industries to "downsize" and release labour, but without gross investment in new activities there will be a rise in unemployment (an example of passive or negative structural change). Second, the movement of labour into new jobs will also depend on the skills (human capital) of those who are forced to move or who are entering the labour market for the first time. Weak educational levels are recognized as a significant feature of European labour markets,[20] but this is more a failure of government policies and indication of insufficient spending on education than a labour-market rigidity per se. The admission of a serious shortage of information technology (IT) skills in Western Europe alongside a youth (under 25 years of age) unemployment rate in EU of 16.4 per cent only serves to underline the deficiencies in European education systems.[21] Third, economic growth and rising levels of GDP per head are, in themselves, powerful solvents of traditional rigidities and modes of behaviour. It is in periods of slow growth and uncertain prospects that attachment to existing practice is greatest — what is criticized by the policy maker as a rigidity is seen by those fearful of losing their jobs as perhaps their only chance for some hope of security.[22]

29. High rates of unemployment alter the balance of power in favour of employers (corporations and shareholders) and this affects not only functional income shares but also working conditions and the way most people live. Both anecdotal evidence and survey evidence point to increasing hours of work, increasing levels of stress, more disruption of family life and leisure, and other welfare reducing features, as a result of the increasingly liberalized economies of the 1990s. Most of these changes were made under the duress of the high unemployment of the 1980s and the increased sense of insecurity of those still in work. The spread of a more aggressive management culture in Europe has not led to better economic performance than in the period before 1973, although it has produced large returns to shareholders and very large salaries for the leaders of business and those engaged in financial intermediation. At the same time, many of the social programmes and legislation introduced by Governments in the 1990s are basically a response to high

unemployment and an attempt to compensate for the relatively weak power of labour. However, their effect is limited when employees fear for their jobs because the prospects of getting another one are low. The best way to empower employees is to make enterprises compete for their services — without the pressure of full employment, employers will resist or evade concessions in respect of allowing greater flexibility in working hours and leisure, providing support for working mothers, reducing onerous working hours and conditions and, in general, creating a more civilized working environment. In such circumstances, employees can thus do much to improve their own working conditions without the need for excessive help and legislation (and expenditure) from the State. Tight labour markets can also stimulate enterprises to increase fixed investment and, as has been happening in parts of the United States, to train not only their existing staff but also the young unemployed.

II. The transition economies

A. Recent developments and the current outlook

30. For the first time since the start of their economic and political transformation, the former centrally planned economies of Eastern Europe and the former Union of Soviet Socialist Republics (USSR) were all growing in 2000: their aggregate GDP increased by 6 per cent, significantly more than the world economy as a whole. This very high rate of economic growth was largely due to the unexpectedly strong recovery in the Russian Federation where GDP increased by 7.7 per cent, its highest growth rate in more than 30 years. After a weak performance in 1999, output also recovered strongly in Eastern Europe and in the Baltic States, their aggregate GDP increasing by 3.9 per cent and 4.8 per cent, respectively.

31. These outcomes suggest that after 10 years of painful reforms, the prolonged and deep transformational recession in these economies has for the most part come to an end. Divergent experiences in coping with this difficult phase, as well as in respect of the deepening and widening of the reform process, have left the region much more heterogeneous than it was 10 years ago. Most Central European and Baltic States have already made considerable progress in instituting a functioning market economy and have enjoyed several years of strong economic growth which has placed them among the leading candidates for EU membership. At the same time, in a number of other countries, the transformational recession and the process of introducing basic reforms have turned out to be much longer and much more strenuous than initially expected: for some CIS economies, 2000 was the first year of positive growth in a decade while in Yugoslavia real market reforms can only now get under way with the new, democratically elected Government.

32. The strong growth in the transition economies in 2000 is a positive and encouraging outcome; at the same time, however, it must be borne in mind that for a number of countries this represents only a meagre recovery after a long economic slump. In fact, after 10 years of reform only four economies (Hungary in 2000, Poland in 1995, Slovakia in 1999 and Slovenia in 1998) have managed to surpass their levels of GDP prevailing before the start of transformation.[23] On average, the CIS economies are still some 40 per cent below their GDP levels of 1989 and in a

number of individual countries GDP in 2000 was less than half of what had been produced a decade ago.

33. It should also be emphasized that, with the exception of a few Central European economies, domestic demand generally remains weak despite its moderate recovery in 2000. This reflects the fact that in a number of countries, especially in South-East Europe, Central Asia and Caucasus, large sections of the population have suffered considerable impoverishment during the prolonged recession, while investment fell dramatically in the face of highly uncertain economic prospects. The falls in output and incomes in these economies are of such magnitude that it will probably take many years, if not decades, before the population at large begins to sense the positive outcomes of the reform process.

34. Nevertheless, as a result of the sweeping reforms of the past decade, most transition economies have established most of the basic institutions of a market economy and have liberalized their domestic markets and foreign trade (admittedly, to widely varying degrees). With the exception of a few CIS countries, the transition economies can now be considered open economies which have the potential to benefit from their increased trade with the rest of the world. In fact, the growth figures for 2000 underline the gains from trade that are now possible for the transition economies.

35. Thus, in 2000, many transition economies benefited from strong and diversified demand in their major export markets, principally for manufactured goods but also for services and a wide range of primary commodities and semi-manufactures. In particular, the Eastern European and the Baltic economies capitalized on the sharp rebound in Western European import demand, while the recovery in the Russian Federation stimulated exports from neighbouring CIS countries. In addition, the commodity exporting countries (and especially the oil and natural gas exporters in CIS) benefited from the upsurge in world market prices which led to a considerable improvement in their trade and current-account balances (see table 3).

Table 3
International trade and external balances of Eastern Europe, the Baltic States and CIS, 1998-2000
(Rates of change and shares, percentage)

	Merchandise exports in dollars (growth rates)			*Merchandise imports in dollars (growth rates)*			*Trade balances (percentage of GDP)*			*Current account (percentage of GDP)*		
	1998	*1999*	*2000[a]*	*1998*	*1999*	*2000[a]*	*1998*	*1999*	*2000[a]*	*1998*	*1999*	*2000[a]*
Eastern Europe	9.3	-1.2	12.9	9.0	-2.5	11.0	-9.9	-9.6	-9.8	-4.6	-5.6	-5.2
Albania	50.9	28.3	-10.0	28.2	11.3	14.0	-19.2	-16.9	-20.6	-1.5	-4.2	-13.4
Bosnia and Herzegovina	82.7	47.3	30.2	36.4	14.7	-5.8	-41.7	-42.1	-32.6	-18.6	-21.4	-17.7
Bulgaria	-15.1	-4.5	20.0	0.5	11.3	17.6	-6.2	-12.2	-13.6	-0.5	-5.3	-5.6
Croatia	8.9	-5.3	3.0	-7.9	-7.0	1.6	-17.8	-17.4	-18.3	-7.1	-7.6	-3.9
Czech Republic	15.7	-0.4	10.4	4.4	-2.5	14.9	-4.3	-3.5	-6.6	-2.4	-3.0	-4.8
Hungary	20.4	8.7	12.3	21.1	9.0	14.5	-5.7	-6.2	-8.5	-4.9	-4.3	-3.7
Poland	2.6	-2.9	15.5	10.9	-2.4	6.6	-11.9	-11.9	-10.9	-4.3	-7.4	-6.3
Romania	-1.5	2.4	21.9	4.9	-12.2	25.6	-8.5	-5.6	-7.3	-7.2	-3.8	-3.8
Slovakia	11.8	-4.6	15.8	11.9	-13.4	12.5	-10.5	-5.0	-4.0	-9.7	-5.5	-3.9
Slovenia	8.1	-5.6	2.2	7.8	-0.2	0.3	-5.4	-7.7	-7.6	-0.8	-3.9	-3.2
The former Yugoslav Republic of Macedonia	6.0	-9.1	11.3	7.7	-7.2	16.3	-17.2	-17.0	-21.0	-8.8	-3.9	-5.7
Yugoslavia	6.8	-47.6	15.1	0.1	-31.8	12.6	-11.8	-10.9	-7.9	-7.4	-8.7	-5.6
Baltic States	3.5	-12.5	24.9	7.5	-13.7	15.0	-22.7	-18.8	-17.5	-11.0	-9.5	-6.2
Estonia	10.3	-9.2	33.2	7.8	-14.2	23.7	-29.7	-22.8	-22.5	-9.2	-5.7	-6.8
Latvia	8.3	-4.9	8.1	17.1	-7.6	8.1	-22.6	-18.4	-19.0	-10.7	-9.7	-7.2
Lithuania	-3.9	-19.0	28.1	2.6	-16.6	13.0	-19.4	-17.2	-14.4	-12.1	-11.2	-5.3
CIS[b]	-15.2	-1.1	46.0	-14.0	-23.8	15.6	6.0	14.9	22.0	-1.7	8.3	14.8
Armenia	-5.2	5.4	22.5	1.1	-11.2	10.9	-36.0	-30.9	-33.3	-21.3	-16.6	-16.0
Azerbaijan	-22.4	53.3	235.7	35.6	-3.9	10.3	-10.6	-2.4	19.3	-30.7	-13.3	1.9
Belarus	-3.2	-16.2	29.4	-1.6	-22.1	36.5	-12.4	-6.7	-11.6	-7.3	-2.3	-1.7
Georgia	-19.7	23.7	50.3	-6.3	-31.9	7.1	-19.0	-12.8	-9.9	-11.4	-6.9	-7.5
Kazakhstan	-16.3	2.9	76.7	1.1	-15.3	30.5	4.9	11.3	21.3	-5.6	-1.4	4.8
Kyrgyzstan	-15.0	-11.6	10.6	18.7	-28.7	-6.1	-20.5	-11.9	-0.9	-23.2	-15.1	-4.0
Republic of Moldova	-27.8	-26.9	2.9	-12.6	-44.0	39.0	-23.1	-9.5	-24.4	-19.3	-2.9	-7.9
Russian Federation	-16.3	0.5	49.5	-17.9	-29.5	9.3	10.2	22.4	28.7	0.3	13.4	19.3
Tajikistan	-20.0	15.4	13.5	-5.2	-6.7	1.0	-8.7	2.4	12.7	-9.1	1.6	10.4
Turkmenistan	-20.9	99.9	92.0	-14.9	46.7	36.9	-14.6	-8.9	12.4	-33.0	-26.0	1.5
Ukraine	-11.2	-8.4	23.9	-14.3	-19.3	21.3	-5.0	-0.9	1.8	-3.2	2.8	7.0
Uzbekistan	-20.1	-9.0	-2.9	-25.4	-9.1	-5.6	0.6	0.5	0.8	-0.7	-1.0	0.2
Total above	-3.5	-1.8	28.2	0.4	-10.2	13.3	-2.7	-0.1	4.7	-3.4	–	4.3
Memorandum items:												
CETE-5	11.6	0.1	12.2	11.1	-1.0	10.3	-9.0	-8.7	-9.1	-4.2	-5.8	-5.3

	Merchandise exports in dollars (growth rates)			*Merchandise imports in dollars (growth rates)*			*Trade balances (percentage of GDP)*			*Current account (percentage of GDP)*		
	1998	*1999*	*2000[a]*	*1998*	*1999*	*2000[a]*	*1998*	*1999*	*2000[a]*	*1998*	*1999*	*2000[a]*
SETE-7	-0.1	-6.8	16.2	2.2	-7.9	13.8	-12.7	-12.5	-12.4	-6.0	-5.1	-4.7

Source: National statistics; CIS Statistical Committee; direct communications from national statistical offices to ECE secretariat; ECE secretariat calculations.

Note: Foreign trade growth is measured in current dollar values. Trade and current-account balances are related to GDP at current prices, converted from national currencies at current dollar exchange rates. Current price GDP values are in some cases estimated from reported real growth rates and consumer price indices. On regional aggregates, see the note to table 3.

[a] Full year 2000 provisional results for Eastern Europe and the Baltic States; January-September for CIS and "Total above".

[b] Including intra-CIS trade.

36. EU is now the main trading partner for all the Eastern European and Baltic economies, accounting for about two thirds of their exports and imports. Owing to their differences in size, the exposure of the transition economies to EU in terms of the relative importance of these trade flows is much greater than the exposure of EU to Eastern Europe and the Baltic States. Hence, Eastern Europe and the Baltic area are extremely susceptible (in both positive and negative directions) to changes in Western European import demand. Another element in their greater sensitivity is the fact that supply-side constraints in the transition economies have been generally low in recent years owing to the availability of underutilized resources (labour and, to a lesser extent, physical capital) and the start-up of large new capacities thanks to greenfield investments, usually involving foreign direct investment (FDI), especially in those countries bordering EU. This, in turn, has amplified the gearing effect of Western European demand, on the one hand allowing Eastern manufacturers to export even more during periods of boom but on the other hand reinforcing the probability of negative shocks during the downturn. During the second half of the 1990s, the approximate elasticity of total Central European and Baltic exports with respect to total Western European import demand has been roughly of the order of two to three (figure II).

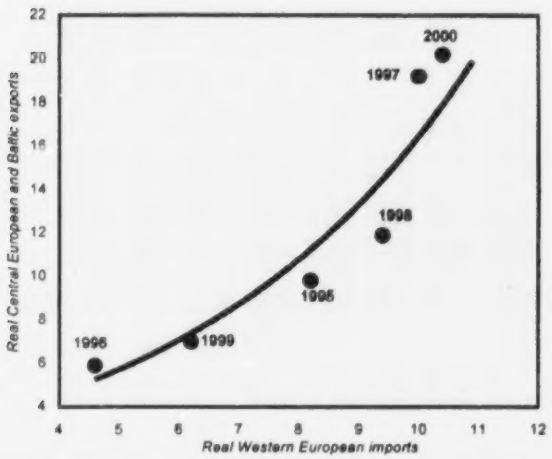
37. The contrast between the development of trade in 1999 and 2000 is especially revealing. In 1999, total Western European imports rose by just 6 per cent which contributed to an increase in Central European and Baltic exports by a little over 7 per cent, which for the latter was one of the smallest increases during the second half of the 1990s (chart 2). Given the persistence of weak domestic demand, aggregate GDP in Eastern Europe rose by a meagre 1.3 per cent, while the Baltic area as a whole went into recession (the aftershocks of the Russian crisis reinforcing the general economic weakness in 1999). In contrast, the acceleration in the volume of Western European imports in 2000 (increasing in aggregate by a little over 10 per cent) was the major factor behind Central European and Baltic exports' increasing by some 20 per cent in volume. This strong export performance made a major contribution to the recovery of output in Eastern Europe and the Baltic area in 2000.

38. The upsurge in world market prices of oil and other primary commodities, coupled with a stronger dollar in which most commodities are traded, provided a substantial terms-of-trade gain for the commodity exporting transition economies which underpinned their growth in 2000. As discussed in chapter 3 of the *Survey, 2001, No. 1*, the effect of such a terms-of-trade gain is indirect: in the first place, it helps to raise final domestic demand and imports; subsequently, the increase in demand may lead to higher domestic output as well. When such a transmission

channel is functioning in a large economy, the increase in its import demand can boost the exports of its main suppliers: this is how the Russian Federation's terms-of-trade gains in 2000 not only contributed to the strong recovery of the Russian economy but also served as an engine of growth for a number of neighbouring CIS economies. Indeed, CIS was the fastest growing regional group among the transition economies in 2000: in 9 of the 12 CIS economies, GDP growth was 5 per cent or more, resulting in an average of 7.4 per cent for the Commonwealth as a whole.

Figure II

Real Western European imports and real exports of Central Europe and Baltic States, 1995-2001
(Annual percentage change)



Source: ECE secretariat calculations based on national data.

Note: Real imports of Western European countries (goods and services); real exports of Central Europe and Baltic countries do not include Slovakia, for which data are not available.

39. Despite the generally favourable outcome for economic growth in 2000, there are no grounds for complacency among policy makers. The fact is that most transition economies, including those most advanced in the reform process, are still rather fragile and vulnerable to external and other disturbances that are capable of causing painful setbacks in economic performance. Indeed, as already emphasized, the strong performance in 2000 underlines the considerable sensitivity of these economies to changes in the external environment, not least in the short run. Commodity exporters and economies specializing in exports of resource-intensive, low value added goods are especially vulnerable. Given their large exposure to Western European demand, the more advanced economies of Central Europe and the Baltic area are also very susceptible to changes in demand in their major external markets. Thus, as the favourable external trends of 2000 are likely to be reversed, the transition economies may well suffer a negative external shock.

40. Owing to their high degrees of export concentration, whether by commodities or export markets, the short-term outlook for the transition economies hinges on the two main factors that contributed to strong growth in 2000: Western European import demand and world commodity prices (especially for oil). As discussed above, the sudden and rapid deceleration of the United States economy in the second half of 2000 and early 2001 has triggered a gradual lowering of the forecasts for economic growth in Western Europe as well. In addition, oil prices have been falling since the last quarter of 2000 and it seems likely that their average level in 2001 will be below that in 2000 (although still higher than in 1999). The first of these developments will have a serious impact on all the transition economies, increasing the downside risks to their short-term prospects, but the second will affect net oil importers and exporters differently.

41. The recent and rapid changes in the world economy do not appear to have been always taken into account in the official forecasts for Eastern Europe and the Baltic States, most of which were made in the context of the budgetary preparations for 2001 when the global slowdown was not yet visible (table 4). These forecasts indicate that Governments throughout Eastern Europe and the Baltic area were generally expecting a further strengthening of the recovery in 2001 and, in many cases, an acceleration of their rates of economic growth.[24] In fact, the most recent data indicate that, in a number of Eastern European and Baltic economies, the growth of output was already decelerating in the closing months of 2000 and at the beginning of 2001.

Table 4
Basic economic indicators for Eastern Europe, the Baltic States and CIS, 1998-2001
(Rates of change and shares, percentage)

	GDP (growth rates)					*Industrial output (growth rates)*			*Inflation (percentage change, Dec./Dec.)*			*Unemployment rate (end of period, percentage)*		
			2000		*2001*									
	1998	*1999*	*Ex ante forecast*	*Actual outcome*	*official forecast*	*1998*	*1999*	*2000*	*1998*	*1999*	*2000*	*1998*	*1999*	*2000*
Eastern Europe	1.8	1.3	4	3.9	4.2	1.4	-0.1	8.3	..	..	..	12.6	14.6	15.1
Albania	8	7.3	8	8*	5-7	21.8	16	12*	7.8	-1.0	4.2	17.6	18.2	16.9
Bosnia and Herzegovina[a]	..	..	12	10*	7-9	23.8	10.6	8.8	2.2	-0.4	3.4	38.7	39.0	39.4
Bulgaria	3.5	2.4	4	5.0*	5	-7.9	-12.3	2.3	0.9	6.2	11.2	12.2	16.0	17.9
Croatia	2.5	-0.4	2.6	3.7	3-4	3.7	-1.4	1.7	5.6	4.6	7.5	18.6	20.8	22.6
Czech Republic	-2.2	-0.8	1.5	3.1	3	1.6	-3.1	5.1	6.7	2.5	4.1	7.5	9.4	8.8
Hungary	4.9	4.4	5	5.2	4.5-5	12.5	10.4	18.3	10.4	11.3	10.1	9.1	9.6	8.9
Poland	4.8	4.1	5.2	4.1	4.5	3.5	4.8	7.1	8.5	9.9	8.6	10.4	13.0	15.0
Romania	-5.4	-3.2	1.3	1.6	4.1	-13.8	-7.9	8.2	40.7	54.9	40.7	10.3	11.5	10.5
Slovakia	4.1	1.9	2	2.2	3.2	3.8	-3.6	9.1	5.5	14.2	8.3	15.6	19.2	17.9
Slovenia	3.8	5.2	3.75	4.8	4.5	3.7	-0.5	6.2	6.6	8.1	9.0	14.6	13.0	12.0
The former Yugoslav Republic of Macedonia	2.9	2.7	6	5.1	6	4.5	-2.6	3.5	-1.1	2.3	10.8	41.4	43.8	44.9
Yugoslavia[b]	2.5	-19.3	14	10.0	5	3.6	-23.1	10.9	45.7	54.0	115.1	27.2	27.4	26.6

	GDP (growth rates)					Industrial output (growth rates)			Inflation (percentage change, Dec./Dec.)			Unemployment rate (end of period, percentage)		
			2000		2001 official forecast									
	1998	1999	Ex ante forecast	Actual outcome		1998	1999	2000	1998	1999	2000	1998	1999	2000
Baltic States	4.7	-2.0	3	4.8	4.7	6.0	-7.6	6.7	..	..	..	7.3	9.1	10.0
Estonia	4.7	-1.1	3.8-4.0	6.4*	6	4.1	-1.7	9.1	6.8	3.9	4.9	5.1	6.7	7.3
Latvia	3.9	1.1	3.5	6.6	5-6	3.1	-5.4	3.2	2.8	3.3	1.9	9.2	9.1	7.8
Lithuania	5.1	-4.2	2	2.9	3.7	8.2	-11.2	7.0	2.4	0.3	1.5	6.9	10.0	12.6
CIS	-3.0	3.2	2.3	7.4	4.2	-3.1	7.3	9.6	..	..	..	9.0	8.3	6.9
Armenia	7.3	3.3	5.6	6.0	6.5	-2.1	5.2	6.4	-1.2	2.1	0.4	8.9	11.5	10.9
Azerbaijan	10.0	7.4	8	11.4	8.5	2.2	3.6	6.9	-7.6	-0.5	2.1	1.4	1.2	1.2
Belarus	8.4	3.4	2-3	5.8	3-4	12.4	10.3	8.0	181.6	251.3	108.0	2.3	2.0	2.1
Georgia	2.9	3.0	4.2-4.8	1.9	3-4	-1.8	7.4	6.1	13.4	11.1	4.6	4.2	5.6	..
Kazakhstan	-1.9	2.7	3	9.6	4	-2.4	2.7	14.6	1.9	18.1	10.0	3.7	3.9	3.7
Kyrgyzstan	2.1	3.7	4-5	5.0	5	5.3	-4.3	6.0	16.6	39.8	9.5	3.1	3.0	3.1
Republic of Moldova[c]	-6.5	-3.4	2	1.9	5	-15.0	-9.0	2.3	18.2	43.8	18.5	1.9	2.1	1.8
Russian Federation	-4.9	3.5	1.5-2.5	7.7	4	-5.2	8.1	9.0	84.5	36.6	20.1	13.3	12.2	9.7
Tajikistan	5.3	3.7	..	8.3	6.7	8.2	5.6	10.3	2.7	30.1	60.6	2.9	3.1	3.0
Turkmenistan	5.0	16.0	12	17.6	16	0.2	15.0	25*	19.8	..	..	..	..	..
Ukraine	-1.9	-0.4	1	6.0	3-4	-1.0	4.3	12.9	20.0	19.2	25.8	4.3	4.3	4.2
Uzbekistan	4.4	4.4	5	4.0	4.4	3.6	6.1	6.4	25.9	26.0	..	0.4	0.5	0.6
Total above	**-1.1**	**2.4**	**3**	**6.0**	**4.2**	**-0.9**	**3.7**	**9.0**	..	..	..	..	..	..
Memorandum items:														
CETE-5	3.2	3.0	4.1	4.0	4.1	4.5	2.9	8.7	..	..	..	10.2	12.5	13.3
SETE-7	-1.5	-3.0	3.6	3.6	4.5	-7.3	-9.9	6.6	..	..	..	15.4	16.5	17.8
Former GDR[d]	2.0	..	..	..	..	7.6	4.8	..	1.1	0.2	..	17.4	17.7	17.2

Source: National statistics; CIS Statistical Committee; direct communications from national statistical offices to ECE secretariat (International Monetary Fund and World Bank data for Albania).

Note: Aggregates are ECE secretariat calculations, using purchasing power parities (PPPs) obtained from the 1996 European Comparison Programme. Output measures are in real terms (constant prices). Forecasts are those of national conjunctural institutes or government forecasts associated with the central budget formulation. Industrial output refers to gross output, not the contribution of industry to GDP. Inflation refers to changes in the consumer price index. Unemployment generally refers to registered unemployment at the end of the period (with the exceptions of the Russian Federation where it is the Goskomstat estimate according to the International Labour Organization definition, and Estonia where it refers to job-seekers).

Aggregates shown are: Eastern Europe (the 12 countries below that line), with sub-aggregates CETE-5 (Central European transition economies: Czech Republic, Hungary, Poland, Slovakia, Slovenia) and SETE-7 (South-East European transition economies: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Romania, the former Yugoslav Republic of Macedonia and Yugoslavia); Baltic States (Estonia, Latvia, Lithuania); and CIS (12 member countries of the Commonwealth of Independent States). Two dots (..) mean data are not available or not pertinent; an asterisk (*) means estimate by ECE secretariat.

[a] Data reported by the Statistical Office of the Federation, these excluding the area of Republika Srpska.

[b] Data for 1999 and 2000 excluding Kosovo and Metohija.

[c] Excluding Transdniestria.

[d] German Democratic Republic.

42. Against this background, the actual short-term outlook for Eastern Europe and the Baltic area largely depends on the success or failure of Western Europe in countering the weakening of its own prospects for output growth. A benign scenario (along the lines of the official forecasts in Eastern Europe and the Baltic States) is conditional on success in arresting the slowdown in Western Europe, especially in Germany.[25] A significant deceleration of growth in Western Europe (involving a deceleration in import growth from about 10 to 7 per cent) would have highly detrimental consequences for Eastern Europe and the Baltic area, which could effectively translate into a reduction of their average GDP growth by 1-2 percentage points.

43. The unprecedented growth of the Russian Federation's GDP in 2000 reflected the combination of a low base (due to the 1998 crisis) and an extremely favourable external environment which is unlikely to be sustained. Indeed, all the indications are that the Russian economy (in particular industrial output) was also slowing down at the beginning of 2001. If oil prices continue to fall, domestic demand in the Russian Federation will be negatively affected and the official forecast for the year as a whole (GDP growth of 4 per cent) will be difficult to achieve. The prospects for most of the other CIS economies are conditional both on the outlook for world oil and commodity prices and on the performance of the Russian economy, including the development of the rouble exchange rate. Hence, the uncertainties concerning the outlook for the Russian Federation are largely translated into uncertainties for the Commonwealth as a whole.

44. This uncertain outlook, and the increasing downside risks, imply the need for a more active role of economic policy in the transition economies in 2001 and modifications to the policy stances embodied in government budgets already adopted for the year. Policy makers will have to maintain a close monitoring not only of their own economic performance but also of current developments in their main trading partners and on the world markets. If external conditions continue to deteriorate, policy makers in the transition economies will have to be prepared to act swiftly with counter-cyclical measures in order to offset, at least partly, an eventual negative shock. Although a full offset may not be in their power, given the risk of aggravating existing imbalances, timely policy responses may help to dampen the negative repercussions.

45. A prolonged slowdown, first in Western Europe and then in the transition economies as well, would pose significant risks for the process of economic transformation and the future prospects of these economies. A slowdown will undoubtedly have a strong negative impact on the labour markets of the transition economies which are already in distress. At the end of 2000, the average unemployment rate in Eastern Europe was still about 15 per cent: despite the high rate of economic growth, enterprise restructuring was still releasing more labour than was being employed in new jobs. Not only will a slowdown in economic growth worsen unemployment but the likely social tensions may put a brake on the necessary but painful process of economic restructuring and systemic reform.

46. As seen from recent experience, growth in the most successful transition economies has been based on the expansion of exports and the upgrading of their commodity structure, both of which are conditional on large amounts of fixed investment, especially FDI. A slowdown of output growth in Western Europe (which is a major source of FDI for the transition economies) may also lead to the

weakening of direct investment in the transition economies. All these increasing downside risks in the transition economies, together with those in Western Europe, reinforce the case for a counter-cyclical policy stance.

47. A slowdown in Western Europe also carries risks for the prospects of EU enlargement. As repeatedly stressed in the *Economic Survey of Europe, 2001*, if the transition economies are to catch up with the industrialized Western European economies in terms of per capita incomes and levels of development (an important condition for a smooth accession to EU), they need to sustain high rates of economic growth (of the order of 5-6 per cent per annum, or even more) for a sufficiently long period of time. The candidate countries from Eastern Europe and the Baltic area are crucially dependent on robust import demand in the Western European markets for making a reality of such a strategy. Hence, if the eastern enlargement of EU is to occur sooner rather than later, EU and its policy makers have a double responsibility in maintaining steady growth in the Union: this is not only in its own self-interest but even more so in the interest of its potential future members and therefore in the broader, regional interest of a future united Europe.

B. The Yugoslav economy and stability in south-east Europe

48. The new, democratically elected Government of Yugoslavia is facing one of the most complex and serious set of economic problems to be faced by any transition economy since 1989. The 1980s were already problematic for the socialist Federal Republic of Yugoslavia, a lost decade in terms of development; but the 1990s were disastrous — a decade of economic regress. Yugoslavia's GDP per head was some 46 per cent of the EU average in 1980; it had fallen to some 34 per cent in 1990, and rough estimates put it at somewhat under 25 per cent in 2000.[26] Devastated by a series of wars culminating in the Kosovo conflict of 1999, by the chronic misallocation of resources under authoritarian rule, and by economic sanctions and isolation from the international community, and debilitated by extensive corruption among the ruling elite which appropriated a considerable proportion of the State's resources to itself, the present Government is faced with an economy racked by macroeconomic imbalances that are far greater than those encountered in any other transition economy, including the Russian Federation. Many of these imbalances were concealed by the previous regime in the form of suppressed inflation and hidden subsidies to the enterprise sector.

49. An enormous quasi-fiscal deficit — swollen by the losses of publicly owned firms, which amounted to 123 per cent of GDP at the end of 1998 — has accumulated as an alternative to confronting the structural causes of the hyperinflation of 1992-1994 and is the largest single imbalance facing the Government. The government debt and the country's foreign debt, which amounts to some $12.2 billion, are both equivalent to well over 100 per cent of GDP;[27] but attempts to correct these imbalances quickly run into a series of connected problems. Dealing with the stock of enterprise debt will require large-scale public funding to restructure those enterprises' balance sheets, while stopping the further accumulation of debt will require hard budget constraints in a market environment; but hard budget constraints will threaten at least 30 per cent of the total employed labour force which are estimated to be underemployed in State-owned firms, in a country where registered unemployment is already running at some 27 per cent of the labour force. Enterprise restructuring, in turn, will require a reform of the

complicated system of social and public ownership, and the highly distorted structure of relative prices will have to be liberalized if there is to be any significant movement towards a more efficient allocation of resources.

50. At the same time, the Government will have to confront two other major tasks: the reform of the public finances and the tax system, and the restructuring of the banks. The net worth of the banks is probably close to zero and so huge amounts of fresh funds will be needed to recapitalize them.

51. The Government must attempt to introduce this major programme of reform in a country where the population, after more than a decade of drastically falling living standards and the loss of a major part of its savings through hyperinflation and government sequestration, has little or no confidence in the country's financial institutions, is distrustful of State institutions and is resentful of what it sees as excessive foreign interference. Whatever reforms are introduced, further hardship for many groups in Serbian society seems inevitable. In these circumstances, it may be dangerously counterproductive to withhold assistance to the Yugoslav Government until international demands are met for the former President to be handed over to the International Tribunal for the Prosecution of Persons Responsible for Serious Violations of International Humanitarian Law Committed in the Territory of the Former Yugoslavia since 1991, in The Hague. As stressed in previous issues of the *Economic Survey of Europe*, the economic recovery of Yugoslavia is essential for the peace, prosperity and stability of south-east Europe as a whole. The stability of the region remains highly fragile as recent events in the former Yugoslav Republic of Macedonia and Bosnia and Herzegovina have underlined. Without in any way compromising Yugoslavia's legal obligations to the Tribunal in The Hague, the immediate priority is for the Yugoslav Government to get a comprehensive programme of reforms under way and to bring about some improvement in the living standards of the population; but it will not be able to do this without massive help from abroad. There are signs that the international financial institutions are now acting more rapidly and effectively in south-east Europe than they did in Central Europe in the 1990s,[28] but they are unlikely to be able to provide all that is needed. A large and generous — and prompt — effort will also be required from EU which should include a significant proportion of non-debt finance in its assistance, as well as efforts to prepare Yugoslavia for eventual accession to the Union. A rescheduling and reduction of the country's foreign debt are also urgent. So far, the sums being discussed by the international community fall far short of the Yugoslav Government's estimates of its needs. Without speedy and adequate assistance, there is a considerable risk that support for the Government's liberal reforms will evaporate into outright opposition and that the economy will collapse into chaos with the risk of a renewed hyperinflation. The crisis in Yugoslavia and the threat of further instability in south-east Europe, together with the programme for its eastward enlargement, present two major challenges to the capacity of EU to act as the major economic power in the region.

Notes

[1] The International Monetary Fund (IMF) was forecasting 4.2 per cent in October 2000 (see *World Economic Outlook* (Washington, D.C., IMF, October 2000)).

[2] G. Haberler, *Prosperity and Depression*, new ed. (Cambridge, Massachusetts, Harvard University Press, 1964), pp. 471-472.

[3] This is the difference between the fourth quarter 2000 real gross domestic product (GDP) and the average annual GDP. In other words, real GDP will increase by 0.8 per cent in 2001 compared with 2000, even if it remains at the fourth quarter 2000 level throughout 2001. For comparison, the statistical carry-over effect for 2000 was 2.3 per cent, which is another way of illustrating the considerable loss of momentum in the United States economy.

[4] See section 2.3 of the *Economic Survey of Europe, 2001, No.1*.

[5] The French Prime Minister noted that "Europe is the main zone for stability and growth in the world"; and Mr. Solbes, the European Union (EU) Commissioner for Economic and Monetary Affairs stated that "Europe is by definition the economic safe haven of the developed world at the moment" (*Financial Times*, 24 March 2001).

[6] The position of "wait and see" with regard to its monetary policy stance was confirmed at the meeting of the European Central Bank (ECB) Governing Council on 29 March 2001.

[7] This is the reverse of the situation in 1973 when many Governments concentrated on the demand effect and neglected the impact on prices.

[8] Deutsches Institut fuer Wirtschaftsforschung (DIW), *Die Lage der Weltwirtschaft und der deutschen Wirtschaft im Herbst 2000*, Wochenbericht 43/2000, 26 October 2000, pp. 728-729.

[9] ECB, *Monthly Report* (Frankfurt am Main), March 2001, pp. 28-29 (box 3).

[10] Ibid., p. 19.

[11] ECB, *Monthly Report* (Frankfurt am Main), January 1999, p. 47.

[12] Speech of the President of ECB to the Parliamentary Assembly of the Council of Europe, Strasbourg, 24 January 2001.

[13] Apart from making labour markets more flexible, another major current concern is to liberalize the gas, electricity and postal markets of EU. This is part of the programme for completing the single market, although failure to push ahead is seen by the Single Market Commissioner, Mr. Frits Bolkestein, as sending an empty signal to investors. He also sees the reluctance of some EU Governments to speed up reform of the public sector utilities as a "fear of modernity ... a mental block" which must be overcome (*Financial Times*, 24/25 March, p. 2).

[14] See also Economic Commission for Europe. *Economic Survey of Europe, 1998, No. 1*, (United Nations publication, Sales No. E.98.II.E.1), sect. 2.2 (i).

[15] S. Scarpetta and others, *Economic Growth in the OECD Area: Recent Trends at the Aggregate and Sectoral Level*, Economics Department Working Papers, No. 248 (Paris, OECD, June 2000), p. 47, table 10.

[16] In fact, a *coordinated* wage bargaining process is a feature of the economies of Austria, Denmark and the Netherlands. Ireland has had a series of income policies since the late 1980s (see chap. 2.6 of the *Economic Survey of Europe, 2001, No. 1*).

[17] Stephen Nickell, "Unemployment and labour market rigidities: Europe versus North America", *Journal of Economic Perspectives*, vol. 11, No. 3 (Summer 1997), pp. 55-74.

[18] Between 1991 and 1999, real gross domestic capital formation increased by some 19 per cent in Western Europe (some 13.5 per cent in the euro area) against 95 per cent in the United States.

[19] A declining industry does not necessarily have to disappear. It may just have to adjust to a lower level, and different composition, of output. However, different levels of output invariably involve different methods of production and hence will also require gross investment.

[20] S. Nickell, loc. cit.

[21] Some European Governments are attempting to make up for these deficiencies by encouraging a brain drain of people with IT skills from poorer countries in Eastern Europe and Asia, which can ill afford to lose them. Similar encouragement to immigration is being given to members of other professions, such as nurses and teachers, which have been hit by European fiscal restraint over the past decade. The ethics of such policies by the Governments of some of the richest countries in the world are questionable, to say the least. Investment in European education to ease such skill shortages should focus not only on school-leavers but also on the lower-paid and part-time workers, many of whom are women who have suffered various forms of discrimination in their schooling. See "Tech-Savvy: educating girls in the new computer age" at www.aauw.org.

[22] Adam Smith understood this very well: "... it is in the progressive state, while the society is advancing to the further acquisition, rather than when it has acquired its full complement of riches, that the condition of the labouring poor, of the great body of the people, seems to be the happiest and the most comfortable. It is hard in the stationary, and miserable in the declining state" (*An Inquiry into the Nature and Causes of the Wealth of Nations*, vol. 1, R. H. Campbell and A. S. Skinner, eds. (Oxford, Clarendon Press, 1976), p. 99).

[23] According to the available statistics, Albania's GDP in 2000 may also have regained its 1989 level; however, it is difficult to be sure of this, given the poor quality of Albanian statistics.

[24] Aggregate GDP in Eastern Europe was expected to grow by some 4.2 per cent in 2001 (0.3 percentage points more than in 2000) while the forecast for the Baltic States was an average 4.7 per cent, slightly below the 2000 outcome (table 3).

[25] The share of Germany in the trade of most Eastern European and Baltic economies is much larger than the share of Germany in the aggregate output of EU.

[26] *Economic Survey of Europe, 2000, No. 1* (United Nations publication, Sales No. E.00.II.E.12), chap. 5 entitled "*Catching up and falling behind: economic convergence in Europe*".

[27] A foreign debt-to-GDP ratio of 118 per cent is based on a GDP figure of $10.3 billion, which is an estimate adjusted for the multiple exchange rates (official, black market and inter-enterprise) existing during most of 2000 (P. Petrovic, D. Dragutinovic and M. Arsic, *The FRY Economy: Macroeconomic Developments and Main Imbalances* (Belgrade, February 2001)). Use of a dollar GDP, based on the unrealistically high official exchange rate, yields a debt-to-GDP ratio of 49. The foreign debt-export ratio of Yugoslavia was some 500 per cent in 2000, far beyond the 200-220 per cent range that is normally taken to signal debt sustainability. Foreign exchange reserves amounted to only 1.6 months' import coverage (imports themselves being very depressed).

[28] PlanEcon, *Monthly Report*, 23 February 2001, pp. 2-6.

United Nations E/2001/13

Economic and Social Council

Distr.: General
30 May 2001

Original: English

Substantive session of 2001
Geneva, 2-27 July 2001
Item 10 of the provisional agenda*
Regional cooperation

Summary of the economic and social situation in Africa, 2000

1. The present document is based on the Economic Commission for Africa's *Economic Report on Africa 2001*, and reviews the economic and social conditions prevalent in Africa in 2000. It focuses first on the economic performance of the continent and its subregions for the year 2000. This is followed by the theme of this year's report: The challenge of sustainable development and poverty reduction.

Economic and social conditions in Africa 2000

2. The economy of Africa grew at an estimated 3.5 per cent in 2000, an improvement over the previous year's performance of 3.2 per cent. Sub-Saharan African countries grew at 3.3 per cent in 2000. However, despite the salutary performance of recent years, Africa has yet to attain and sustain the high growth momentum capable of reducing absolute poverty by half. Africa's annual average economic growth of 2.3 per cent during the last decade of the twentieth century did not keep pace with the yearly increase with population growth of 2.8 per cent, and was considerably lower than the 7 per cent annual growth required to reduce poverty by half by the year 2015. The slow growth of the African economy presents the biggest challenge to improving the living conditions of the majority of the African population.

3. There was wide variation in the performance of African economies at the national and subregional levels and among economic groupings. The median growth rate for the region as a whole declined from 4 per cent in 1999 to 2.8 per cent in 2000. In North Africa the median growth rate for the seven countries increased from the 2.6 per cent of 1999 to 3.8 per cent in 2000, while the average growth rate increased from 2.6 per cent to 4.1 per cent, respectively. Growth in sub-Saharan Africa was relatively modest, increasing from 3 per cent to 3.1 per cent, while the median growth fell from 4.1 per cent to 2.5 per cent.

* E/2001/100.

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4. The difference between the average and median measures of performance reveals the uneven growth among the subregions, economic groupings and countries. Growth declined in 35 countries, increased in 16 and was the same in 2 others in 2000 relative to 1999. Of the 46 countries in sub-Saharan Africa, growth declined in 32, increased in 12 and was the same in 2.

5. In sharp contrast to the experience of recent years, only one country (Zimbabwe) posted negative GDP growth in 2000. Furthermore, no economy grew at a rate of less than 1 per cent. In 21 countries the growth rates ranged between 1 per cent and 2.9 per cent, while another 15 countries managed to grow in the 3 per cent to 4.9 per cent range. Nine countries had growth rates between 5 per cent and 6.9 per cent. Only two (Equatorial Guinea and the Libyan Arab Jamahiriya), as opposed to five countries in the previous year (Equatorial Guinea, Guinea-Bissau, Rwanda, Botswana, Mozambique) grew at or higher than 7 per cent in 2000.

6. At the subregional level, performance was positive in three and regressed in two regions. In east Africa, which accounts for 31 per cent of the population and 8 per cent of the region's GDP, growth declined from 4.1 per cent in 1999 to 3 per cent in 2000, while the median fell from 3 per cent to 2 per cent, respectively. The highest rate of growth for the subregion was 5 per cent (Ethiopia) while the lowest was 1 per cent (Burundi, Comoros and Kenya). North Africa, which accounts for 22 per cent of the region's population and contributes 41 per cent to the continental GDP, boosted its growth from 2.6 per cent in 1999 to 4.1 per cent in 2000. In southern Africa, where 29 per cent of the region's GDP is produced and 31 per cent of its population reside, growth doubled to 3 per cent mainly due to the strong resurgence of the South African economy. West Africa, accounting for 17 per cent of Africa's GDP and 29 per cent of its population, saw its growth decline from a robust 3.7 per cent in 1999 to 2.8 per cent in 2000, mainly on account of the slow-down in Ghana and the below-average performance in Côte d'Ivoire. Economic performance improved in Central Africa, which contributes 5 per cent to the region's GDP and accounts for 4 per cent of the population, with growth increasing from 4 per cent to 4.5 per cent.

7. The five largest economies in Africa, i.e., the African G-5 (Algeria, Egypt, Morocco, Nigeria and South Africa), which account for 59 per cent of GDP and 37 per cent of the population of the region, posted a growth rate of 3.2 per cent in the year under review, compared to 2.8 per cent in 1999. The 11 oil-exporting African economies, which account for 49 per cent of the region's GDP and 41 per cent of the population, managed to push their growth to 4.4 per cent from 3.8 per cent in 1999 because of higher oil revenue.

8. The six island-economies, making up about 2 per cent of the region's GDP and population, managed to increase their growth rate to 4.7 per cent from 4 per cent in 1999. The African least developed countries (LDCs), representing 16.5 per cent of the GDP and 47 per cent of the population, saw their growth shrink from 4.5 per cent in 1999 to 3.5 per cent in 2000. The 15 land-locked countries (10 per cent of the regional GDP and 23 per cent of the population) were the hardest hit, with growth declining from 4.9 per cent in 1999 to 2.9 per cent in 2000.

9. At the sectoral level, there was significant recovery in agriculture, which posted a growth rate of 3.6 per cent in 2000 compared to 2.1 per cent in 1999. The industrial sector was also on a positive trend, particularly in the oil-exporting and North African countries. This sector grew by 3.4 per cent compared to 2.8 per cent

in the previous year. The service sector continued to enjoy buoyant growth, increasing by 1 percentage point to reach 4 per cent in 2000.

10. Despite the welcome recovery in agriculture, the region remains far short of satisfying its food needs. Africa will continue to depend on external assistance to make up for the gap between domestic supply and demand for the nearly 20 million people who face critical food shortages.

11. On the macroeconomic front, inflation measured 11 per cent, exceeding the 1999 level by 1 percentage point. This is attributable to the improvement in agricultural output in many countries, which kept prices stable. Price rises in the oil-exporting countries were much more pronounced, with consumer prices increasing by 15 per cent.

12. On the external front, United States-dollar-denominated world prices for the region's exportables were mixed. Average oil prices increased by more than 57 per cent over their 1999 level. On the other hand, prices of food and beverages declined while those for agricultural raw materials slightly increased. Beverage prices were the hardest hit with prices falling by more than 16 per cent relative to 1999. The aggregate price for the region's exportables increased by 20 per cent.

13. Export volume of African countries increased by 8 per cent while import volume rose by 5 per cent. Export earnings increased by nearly 30 per cent to $131 billion as a result of increases in prices and volume. The increase in the price of oil, which accounts for 60 per cent of the region's export earnings, was the main factor behind the surge in foreign exchange receipts.

14. United States-dollar-denominated prices of the region's imports increased by 4 per cent. As a result, the terms of trade for the region increased by about 16 per cent. However, the terms of trade of the non-oil-exporting countries deteriorated by 21 per cent owing mainly to higher oil prices, increased prices of the region's imports and declining prices for their exports.

15. The balance of trade registered export earnings of $131 billion in 2000, 30 per cent higher than in 1999. The value of imports is estimated at $117 billion. As a result of developments in exports and imports, the current-account balance improved considerably, registering a $5.7 in surplus.

16. However, the balance on current account of the non-oil-exporting countries further deteriorated. The trade balance was in deficit by $23 billion and the current account by $48 billion. External resource flows rose from $22 billion in 1999 to $23 billion. Foreign direct investment amounted to about $6 billion while $8 billion came in as transfers. Borrowing amounted to $9 billion, an increase of nearly 13 per cent over 1999. The volume of debt declined to $342 billion relative to the $359 billion in 1999. Debt servicing increased from $39.4 billion in 1999 to $43.4 billion in 2000.

17. There has been slight progress in poverty reduction worldwide with the share of population living on less than $1 a day falling from 28 per cent in 1987 to 23 per cent in 1998, even though the number of poor remained roughly constant, as the population increased. In Africa, however, the population living on less than $1 per day has sharply increased from 217 million in 1987 to 301 million in 1998. Africa is now the region with the largest share of people living below $1 a day. The average income of the poor for the continent as a whole is only 83 cents per person per day.

In sub-Saharan Africa 52 per cent of people live on less than $1 a day (in 1995 dollars adjusted for purchasing price parity). In 2000 the average monthly expenditure was only $13 by the rural poor (down from $14 in 1999) and $27 by the urban poor. That leaves 59 per cent of rural people below the poverty line and 43 per cent of urban. The level of poverty is moderate in the North African countries, where only 22 per cent of their population are below the poverty line; the corresponding figure for sub-Saharan Africa is 51 per cent.

18. Africa has the worst income distribution in the world, with a Gini coefficient of 51 per cent (0 per cent is perfect equality, 100 per cent perfect inequality). The mean share of the lowest 40 per cent of the rural population is only 16 per cent of total expenditure, a shortfall of 24 percentage points, while the mean share of the top 20 per cent is about 48 per cent, an excess of 28 points over perfect equality. Similarly, the mean share of the lowest 40 per cent of the urban population is only 15 per cent of total expenditure, a shortfall of 25 percentage points of total income. The mean share of the top 20 per cent of the population is about 50 per cent, an excess of 30 points.

19. The health status of the continent declined largely due to the ravages of the HIV/AIDS epidemic; 25 million people, including over 1 million children, were living with HIV/AIDS. At least 5 million people were newly infected with the virus in 2000. In Botswana, Namibia, Zambia and Zimbabwe, between 20 and 27 per cent of people aged between 15 and 50 are infected. In 12 other African countries, including Ethiopia, Kenya, Mozambique, South Africa and the United Republic of Tanzania, 9 to 20 per cent of adults are infected. Some countries in West and Central Africa have been less affected and have been able to maintain low and stable HIV/AIDS infection rates. Senegal is an excellent example. It is estimated that deaths due to HIV/AIDS in Africa will soon surpass 21 million.

20. Some indication of how quickly the epidemic has spread out of control in Africa can be gleaned from the following statistics: Uganda was the only African country with an HIV prevalence rate of higher than 2 per cent in 1982. Today, there are over 20 countries in Africa with a prevalence rate of 7-10 per cent or more. In urban antenatal women in Blantyre, Malawi, the prevalence rate increased from less than 5 per cent in 1985 to over 30 per cent in 1997. The corresponding figure from Francistown, Botswana, was 43 per cent in 1997 from less than 10 per cent in 1991. In Ethiopia, the proportion of adults infected with HIV increased from less than 1 per cent in 1987 to nearly 10 per cent in 1997.

The challenge of sustainable development with poverty reduction

21. Africa faces the critical challenge in the twenty-first century of reducing widespread poverty while conserving the rich biodiversity and reducing environmental degradation. Worldwide concerns about the environment have increased owing to the pace at which mankind is using up natural resources and the failure to develop safe means to dispose of the waste. Global warming due to emissions of greenhouse gases and the depletion of the ozone layer is advancing at an alarming rate. Non-renewable resources are being run down, biological species are being destroyed while soil degradation grows at an alarming pace.

22. Sustainable development involves multidimensional and complex interactions between human beings and their ecosystem. As a point of departure, the United

Nations definition of sustainability as that which "meets the needs of the present without compromising the needs of the future generation" is adopted in the Report. This approach requires a comprehensive and holistic framework to articulate needs, and generate effective strategies and efficient policies, covering a broad range of interactive determinants, including demographic dynamics, social and economic conditions and natural resource endowments.

23. Sustainable development is a long-term interactive process that embodies:

(a) Environmental sustainability

Environmental sustainability will ensure Earth's natural wealth. To do this, we must: (i) maintain the integrity of ecosystems and the continued health of the planet's life-support system — which sustain the productivity, adaptability of renewal of all life; (ii) maintain biological diversity in the variety of life on which ecological processes depend — processes that provide a stream of current and future benefits to human beings; and (iii) ensure sustainable population dynamics (size of population, growth rate and distribution), as it often exerts pressures on the environment.

(b) Economic sustainability

Economic sustainability implies policy choices leading to pro-poor, broad-based economic growth and development over the long term. Economic sustainability requires action on four fronts: (i) macroeconomic policy measures; (ii) efficient resource allocation at the sectoral level to effect economic transformation, (iii) more equitable access to resources, and (iv) enhancing the opportunities of the poor.

(c) Capable States

Sustainable development is unlikely, if not impossible, where the State is ineffective and mired in conflicts. Development is unthinkable in an environment of war or widespread political violence, or where people's rights and freedoms are heavily constrained. Political sustainability requires social consensus about acceptable ways of resolving conflict, the rights and responsibilities of citizens, and the appropriate role of the State, including the military.

There is greater awareness and recognition today among the African countries and their development partners that governance systems have to evolve towards more participatory, open, transparent, accountable and efficient decision-making modalities in order to support and promote sustainable development.

Indicators of sustainable development

24. The *Economic Report on Africa 2001* presents indicators of sustainable development. Three dimensions of sustainability are identified — economic, environmental and institutional. The three should not be viewed as independent of each other. They are closely linked, and efforts to promote any one of them must take explicit account of the implications for the others. Sustainable development can be only reached if development efforts respect all three. Viewing sustainable

development this way increases understanding of how economic, environmental and institutional systems interact.

Environmental sustainability index

25. As discussed above (see para. 23), in order to achieve environmental sustainability, it is necessary to: (a) maintain the integrity of ecosystems and the continued health of the planet's life-support systems, which sustain the productivity, adaptability and renewal of all life; (b) maintain biological diversity in the variety of life on which ecological processes depend — processes that provide a stream of current and future benefits to humans; and (c) ensure sustainable population dynamics (size of population, growth rate and distribution), as population often puts pressures on the environment.

Components of the index include:

- Environmental quality — water quality/quantity, biodiversity, air quality;
- Environmental stress — pollution, consumption and waste, deforestation, and population;
- Environmental protection.

Economic sustainability index

26. Economic sustainability implies, as described above (see para. 23), policy choices leading to broad-based economic growth and development over the long term. Growth is not a good in itself but is valuable as a means for advancing human well-being — so economic sustainability should be seen in the context of other policy priorities, including institution-building and sound environmental management.

27. Economic sustainability requires action on four fronts: (a) macroeconomic policy measures and structural adjustment; (b) efficient resource allocation at the sectoral level; (c) more equitable access to resources, including improving income distribution and striving for gender equity; and (d) increasing the productivity of the poor, partly through investments in basic health and education.

28. The report provides a modified version of the Economic Sustainability Index. Components of the index include:

- Income/wealth, consumption, savings, and investment — levels and changes (pace, regularity, and volatility) including poverty and inequality;
- Human capital — education and health (level and changes including inequality);
- Factor productivity;
- Infrastructure.

Indicators of the capable State

29. That institutions matter is no longer in doubt. The Report 2001 focuses on institutions which pertain to the development of a market-based economy and the management of civil conflict. The Report provides indicators of a Government's capacity to formulate and implement policies and the respec of citizens and the

State for its institutions. The following six component indices of the capable State are measured for selected African countries:

- Access to information and accountability;
- Government effectiveness;
- Political stability;
- Rule of law;
- Control of corruption.

The environmental challenge

30. Africa is the victim of both endogenous and exogenous factors of environmental degradation. Despite the fact that the region contributes the least to the emission of greenhouse gases (1.1 metric tons per capita per annum), owing to its low per capita consumption of fossil fuel, it is the most vulnerable to climatic changes. Vulnerability of the rural sector is most acute, given its high dependence on rain-fed agriculture and because of widespread poverty, which limits capacity to effectively respond and adapt to the changing circumstances. Although it is notoriously difficult to predict climatic changes in the years ahead, temperatures are expected to increase at the rate of 0.2° C per decade over the next 50 years. Rainfall is projected to decline by 10 per cent in southern Africa and the Horn, and fall by 15 per cent in the Sahel by 2050. The sea level is projected to rise by 25 cm, which is expected to impose additional constraints, mainly on island economies.

31. The quality and capacity of the soil to support productive agriculture is critical to sustainable development. Unfortunately, the larger proportion of the African soils have characteristics that render them not very productive. In addition to extensive and intensive use in the past, most soils are either very old (the laterites), awfully leached, and of low fertility. Soil regeneration is a slow process and is likely to lag behind vegetation and climatic changes. Fire and land use have been identified as factors influencing the soil-water mix, and the turnover of organic matter. Land use and forest fires are among the more critical factors. Changes in the intensity and frequency of forest fire regimes will determine the soil nutrient mix and influence its productivity.

32. Climatic changes and land management practices lead to land degradation and eventually to desertification. Land degradation, defined as "a reduction in the capability of the land to support a particular use" is a major problem in Africa where 66 per cent is dryland and 73 per cent of the agricultural drylands are already degraded. Land degradation is manifested in, among others, soil erosion, soil contamination, loss of organic matter, nutrient depletion, acidification, and salinization. Low rainfall, long dry spells, recurrent droughts, sparse vegetation, are among factors contributing to the region's desertification.

33. Deforestation, which is estimated to vary between 0.52 per cent and 0.7 per cent per annum is one of the major causes for land degradation and soil erosion in Africa. Rates of deforestation in West Africa and in Madagascar are high and are likely to lead to nearly complete deforestation in these areas. Logging for lumber, long considered a primary cause of deforestation, has been a major factor in West Africa. Initially one of the most densely forested countries in West Africa, Côte

d'Ivoire, in the absence of controls, lost 290,000 hectares of forest per year in the first half of the 1980s. This was equal to 10 per cent of the total closed area in the country. In West Africa today, only about 15 per cent of the original tropical moist forest remains. Africa lost 39 million hectares of tropical forest during the 1980s, and another 10 million hectares by 1995 (ADB 1997).

34. The devastating effect of plant pests and diseases in Africa is reflected in the amount spent by farmers on their control. In Kenya in 1995, for instance, farmers purchased 1.36 million kg of insecticides, 1.7 million kg of herbicides and 3.3 million kg of fungicides. These represent a very significant amount of crop production cost (Republic of Kenya 1996). Huge crop losses are incurred in Africa as a result of pre- and post-harvest pest and disease damage. The issue of pest and disease resistance in crops is, therefore, of crucial significance to African farmers.

35. Water is also becoming an issue of serious concern. There is fear that future regional conflicts may result from competition over water use. Partly owing to long spells of drought, Africa has less water today than in the 1970s. For instance, the Congo basin, which incorporates one of the largest river systems in the world, has witnessed a significant reduction in water resources. Associated with water supply is the issue of water pollution. In rural areas, the population draws water from unprotected areas, such as wells and rivers. Many of these sources have been exposed to serious pollutants from the infiltration of agricultural chemicals and fertilizer, and raw sewage.

36. A recent study, *Pilot Analysis of Global Ecosystems* reveals that in Africa:

- Soil degradation, including nutrient depletion, erosion, and salinization is widespread;
- Irrigation is draining more water than is being replenished by rainfall, causing water tables to fall;
- Agriculture consumes over 50 per cent of the freshwater withdrawn annually; also, many water resources are being polluted by extensive use of fertilizers and pesticides; and substantial forest areas are being converted into agriculture, resulting in extensive species and habitat loss. In fact, agriculture is encroaching on many national parks and other protected areas.

Modernized agriculture is the key to sustainable development

37. Africa's agriculture will for a long time continue to play a leading role in generating incomes for the majority, providing food and industrial inputs, and producing the bulk of exports. Therefore any credible attempt to reduce poverty, conserve biodiversity and reduce environmental degradation needs to focus on this sector. Among the constraints facing efforts to regenerate agriculture is the continuously declining farm size, the depletion of soil fertility and the consequential low productivity, backward technology and climatic variability.

38. The fact that African agricultural development has been held back over the last 30 years is often attributed to immediately recognizable adverse conditions, such as the low population density, the proneness to drought and disease, and civil strife. Furthermore, a legacy of poor public interventions in input and product markets has not yet been entirely reversed.

39. Although Africa is reputed to be an underpopulated continent, it has the second lowest per capita cropland at 0.28 hectares compared to Asia's 0.16 hectares. This compares unfavourably to the 1.8 hectares per capita of 1960. The relative crowding of the rural milieu and the resulting diminution of farm size is due to failure to develop an alternative income-generating activity, making agriculture the reservoir to accommodate the growing labour force. Of the population engaged in agriculture, 60 per cent accounts for only 19 per cent of GDP, which is indicative of the abysmally low productivity of the labour force engaged in the sector.

40. High fertility rates are considered to have contributed to stagnation in average yields. There is a general impression that Africa is a land-abundant continent; however, conditions for cultivation in several areas are not ideal. Much of idle land is actually of low quality and unsuitable for production owing to erratic rainfall. Fallow land may not actually be surplus land and opportunity costs may also be associated with cultivation. Finally, several areas are suffering from the effect of tsetse flies, river blindness, and other illnesses. There are concerns about the success of national agricultural systems in the development of crops suitable for fragile soils. The inability of current varieties to absorb a higher ratio of fertilizers halts the transition of African agriculture to more intensive forms of cultivation. Low yields act as a disincentive for capital investment. Previous studies have shown very weak effects of mechanization in productivity increases.

41. Africa's rapid population growth rate of about 3.0 per cent per annum is greater than the increase in food production of 2.5 per cent per annum. This calls for new ways of improving and sustaining food production to move in tandem with the population growth rate. Agricultural development is in all cases a critical factor for the economic development of most countries in the continent. The fast demographic growth in African countries will therefore push back agricultural frontiers in many regions, and will increase intersectoral competition for the use of scarce resources.

42. It is estimated that during this decade, less than 5 per cent of increase in food production will emanate from crop area expansion while some 10 per cent will originate from additional irrigation. The overwhelming balance of over 80 per cent will come from increased productivity per unit of land.

43. For instance, although African conditions are ideal for cereal production, the continent still remains a net cereal importer. In 1998, for instance, sub-Saharan Africa alone accounted for 36 per cent of global food deliveries, compared with only 11 per cent for Latin America and the Caribbean. Chronic food shortages have led to serious undernourishment among broad sections of the population and to stunting among children. While cereal yields in Asia and Latin America have risen since the mid-1960s, following the introduction of high-yielding varieties, those in Africa have remained stagnant or declined. In 1993-1995, for instance, average yields in Africa were over 40 per cent lower than in Asia and Latin America. By 1996-1998, they were below 50 per cent.

44. Past increases in agricultural productivity resulted from an expansion of land under cultivation but today such land is in short supply, if at all available. Hence, intensive techniques provide the best hope for increased production of the principal food crops in Africa. Comprehensive studies on African rainfall have shown a progressive drying trend, with drought a common occurrence over large parts of the continent. The frequent droughts in Africa have often been blamed on human agricultural activity, particularly overgrazing and deforestation. The fact remains

that agricultural growth is also severely constrained by extensive and severe rainfall shortage. Therefore, development of crops and livestock breeds that are early-maturing is needed, with higher productivity and that are adaptable to harsh climatic conditions of Africa.

Harnessing crop biotechnology for poverty reduction and sustainable development

45. The Report notes that agriculture in Africa will be confronted with three major challenges in the decades to come:

- To increase the availability of nutritious food to an increasing population;
- To use the natural ecosystems (including marginal land) more effectively, efficiently environmentally sustainable in food production; and
- To make a contribution to the overall economic development and poverty reduction.

46. Harnessing crop biotechnology is an important avenue to achieve these goals.

Green Revolution I

47. The first phase of the Green Revolution, or GR I, in Africa and most of the Asian countries (1960-1975) consisted of the introduction of varieties of wheat, rice and maize, fundamentally focused on raising yields of open-pollinated seeds. These varieties were selected to be responsive to high intake of fertilizers under irrigation. Because they were highly susceptible to pest infestation, they required extensive spraying of chemicals. Hence, the new varieties were mostly adopted by farmers in the best-endowed regions, with good market integration, easy access to credit, and sufficient ability to bear risks.

48. Significant improvements in yields were recorded in these crops as to give rise to the term "Green Revolution". These were mainly among large- and medium-scale farmers in Asia and to some extent in Africa, e.g., in Kenya, Zimbabwe and South Africa. Nonetheless, after the early euphoria with the GR I, a host of problems became evident: the need for a significant use of agro-chemical-based pest and weed control raised both environmental concerns and human health concerns; as irrigation areas expanded, water management required skills that were not always available and there were new scientific challenges to be tackled. Furthermore, lack of appropriate technology remained a constraint for many farmers, especially smallholder farmers, in areas with unfavourable conditions.

Green Revolution II

49. The second phase of the Green Revolution, or GR II, (1975-to date) sought to consolidate the extent of these yield gains by diversifying research in the pursuit of a wider range of traits desirable for the less well-endowed areas for the smallholder farmers. Continued gains were sought by increasing the productivity of factor use, rather than applying high doses of chemicals and water. To this end, the number of high-yielding varieties of a particular crop was broadened to extend the geographical applicability to specific ecosystems and raise spatial genetic diversity. New traits included resistance to pests and diseases and tolerance to stress. This

allowed reduced variance to yields. The area of applicability was extended towards rainfed and marginal regions, e.g., in the Sahel region of West Africa and some parts of East and southern Africa. The range of crops was also widely broadened towards crops suited for marginal environments and consumed by people in tropical and semi-tropical environments, such as pearl millet, sorghum and cassava. In this regard, the quest for traits additional to yields, in particular traits desirable for poor farmers and improved farm management, was the hallmark of the GR II revolution. As a consequence, direct effects on poverty were significantly enhanced.

50. Both the GR I and II were public-sector research generated via public institutions and international institutes; e.g., the International Agricultural Research Centres (IARCs) partially sponsored by the Consultative Group on International Agricultural Research (CGIAR). CGIAR research has borne considerable fruit:

- The adoption of new plant varieties, agricultural know-how, and technology developed at CGIAR research centres have all been crucial in the increasing grain harvests in most developing countries during the past three decades;
- Of the wheat varieties planted in developing countries, 80 per cent have come from the International Maize and Wheat Improvement Centre (CIMMYT), a CGIAR centre in Mexico, with the additional output to high yield worth nearly $2 billion a year;
- Scientists at the International Rice Research Institute (IRRI) and the West African Rice Development Association (WARDA), the other CGIAR centres, crossed African and Asian rice varieties applying tissue culture techniques to develop a strain that is both hardy and has exceptionally broad leaves, thereby providing biological weed resistance; this not only improves rice harvest in West Africa, but has reduced the time women rice farmers have to spend weeding, allowing them to spend more time in caring activities that are essential for good child nutrition; and
- Other CGIAR centres have helped West and Central African maize production to increase threefold between 1981-96, enough to feed an additional 40 million people a year, at a value of $1.2 billion.

51. The 1998 report on the Third System Review of CGIAR stated that "investment in the CGIAR has been the single most effective use of official development assistance (ODA). ... There can be no long-term agenda for eradicating poverty, ending hunger, and ensuring sustainable food security without the CGIAR."

Gene Revolution

52. The third phase is the Gene Revolution, GeneR, or Biotechnological Revolution, as it has popularly come to be known. The genesis of biotechnology offers the possibility of further amplifying the achievements realized by traditional breeding for a number of reasons, which include, inter alia:

- Diagnostic kits for identification of plant and animal pathogens;
- Quickening of the pace of research via the use of selectable gene markers, promoters, and new scanning devices; and
- Expanding the spectrum of potential products and traits via genetic engineering (GE) (recombinant deoxyribonucleic acid (DNA) techniques,

insertion of genetic materials) of plants and animals; wide crossing (transfers of genes from wild relatives of the crop) and transfers of foreign genes.

53. The potential of biotechnology to reduce poverty calls for careful identification of the main features of agro-biotechnology research that can have direct and indirect effects on poverty: what crops, what traits, and for what environment? These are some of the key questions that the genetic modification (GM) biotechnology must address.

54. Some African countries are in the process of producing GM, or transgenic crops. In others, namely in Kenya, success stories have been reported where biotechnology approaches have, to a greater extent, contributed to the solution of specific problems among the smallholder farmers. The ongoing GM crop research and transgenic crops grown in some selected African countries is discussed below.

Some definitions of biotechnology and its component technologies

Biotechnology is any technique that uses living organisms or substances from those organisms to make or modify a product, improve plants or animals or develop micro-organisms for specific uses. Biotechnology, therefore, deals with the utilization of biological processes in technical operations and production. Genetic engineering is a means to an end, inasmuch as it allows the properties of micro-organisms to be modified in such a way that a desired effect is brought about in biological processes, among others. Biotechnologies can be divided into the traditional areas of fermentation for the production of potable beverages and foodstuffs, and the modern biotechnologies, which include the production and use of organisms, which have been GM for the large-scale production of single-cell proteins or proteins. The major components of modern biotechnology are:

- Genomics: the molecular characterization of all species.
- Bioinformatics: the assembly of data from genomic analysis into accessible forms.
- Transformation: the general process of moving genes between species. The result is a transgenic organism. Lately, transgenic organisms have come to be known as GMOs.
- Genetic modification: the direct introduction of desirable characteristics by the artificial transfer of foreign or synthetic DNA into plants. DNA is the biochemical substance from which the genetic material is made.
- Molecular breeding: the identification and evaluation of desirable traits in breeding programmes by the use of marker-assisted selection, for plants, livestock and trees.
- Diagnostics: the use of molecular characterization to provide more accurate and rapid identification of pathogens and other organisms.
- Vaccine technology: the use of modern immunology to develop recombinant DNA (rDNA) vaccines for improving control of lethal diseases.

- Plant tissue culture: a technique used for the growth of undifferentiated plant cells in vitro. The regeneration of entire organisms from single cells, to both preserve genetic resources and produce disease-free planting materials.

Sources: Coombs (1992), Persley and Doyle (1999), and Qaim (1999).

Ongoing genetic engineering plant research at the Agricultural Genetic Engineering Research Institute (AGERI), Egypt (wheat, maize, faba bean, potato, tomato, date palm, banana, cucurbits and cotton)

55. The Egyptian Government has a strong desire to improve its agricultural sector performance. This sector contributes to the overall food needs of the country's 67 million people. Arable land makes a mere 3 per cent of the total land area, while the area under irrigation constitutes some 99 per cent of cropland. Agriculture accounts for 36 per cent of the total labour force, and both 20 per cent of GDP and total exports. Strategic goals of the Egyptian agricultural sector are (a) optimizing crop returns per unit of land and water consumed; (b) enhancing sustainability of resource-use patterns and protection of the environment; and (c) bridging the food gap and attaining food self-reliance.

56. One of the major targets for genetic engineering biotechnology in Egypt is to produce transgenic plants conferring resistance to biotic stress resulting from pathogenic viruses, bacteria, fungi, and insect pest, and abiotic stresses, such as salinity, drought and high temperature. These biotic and abiotic stresses are major agricultural problems leading to serious yield and post-harvest losses in many economically important crops in the country, particularly the ones named above.

57. Established in 1990 as a public sector institution, AGERI aims at promoting safer transfer and use of this technology. The Institute attaches a high priority to collaborating with the private sector, which will be fully kept abreast of the research and development in genetic engineering and biotechnology in Egypt via: (a) circulation of newsletter and research reports; (b) representation of the private sector in the design of product research and development; and (c) representation of the private sector on the AGERI governing board. AGERI has further initiated partnership with Pioneer Hi-Bred, a United States private company in Iowa State, through a USAID research and development arrangement to achieve, among others, the following:

1. Research and training for AGERI scientists at Pioneer Hi-Bred/Iowa in designing and implementing safety regulations, laboratory safety procedures, and field testing procedures for GMOs; and

2. Increase the potential for product development.

58. Recently, the Institute successfully manufactured its first bio-pesticides — Agerin — based on the insecticidal bacterium Bacillus thuringiensis (Bt). Agerin is capable of protecting a broad range of key agricultural commodities, and controlling a number of biomedically significant pests. Field trials of GM potatoes containing tuber moth-resistant were conducted in 1996, and in 1997 the trials for virus-resistant tomatoes and cucurbits. The trials were part of collaboration programme

between the AGERI and the Agricultural Biotechnology for Sustainable Productivity (ABSP).

59. To fulfil its commitments to bring research results into application by a large number of farmers, the Institute in collaboration with a private investor has succeeded in setting-up a commercial entity "BIOGRO International". It is envisaged that BIOGRO will be responsible for, inter alia, the free flow of information and the genetically modified crops produced by the Institute for commercialization.

60. As the leading biotechnology research institutions in North Africa and the Middle East, AGERI plans to share its technical know-how with other countries within the framework of technical cooperation among developing countries. This is expected to materialize via specialized seminars/workshops and regular internships.

Transgenic crops grown in South Africa (maize, potato, strawberries and cotton)

61. South Africa is among a host of developing countries with a unique set of problems that beg for the adoption of modern biotechnology to increase agricultural output. South African farmers, most of whom are smallholders, have not benefited from the recent advances of biotechnology and a number of constraints still persist. The country has less than 15 per cent of arable land and a high population growth rate has placed high demand for more food, particularly proteins. Most small-scale farmers remain poor, obtaining their livelihoods from marginal lands; this has triggered massive rural-urban migration. There is further evidence of increasing damage to the agricultural ecological base, e.g., land, water, forests, and biodiversity, among others. The end result has been unprecedented poverty among a large section of the population.

62. In this regard, considerable work has been done on GM maize, potato, strawberries and cotton, and the issue of integrated pest management. In fact, the above-named ranges of crops are expected to expand to include more food crops. Field trials with GM crops have been taking place since the early-1990s. The first commercial releases of GM varieties were in 1997, and commercial planting of crops with insect-resistant and herbicide-tolerant traits started in 1998. Studies in the Makatini Flats in the Kwazulu-Natal province in 1998 showed a 20 per cent yield increase in cotton through the use of insect-resistant GM cotton seed. In cases of some commercial farmers, operators were able to forgo pesticide spraying completely. Drought-tolerant research is making tremendous progress in South Africa. The private sector is quite active in GM biotechnology, and has been doing this without government involvement. The public sector attitude is understood at the political level as being in support of good science, responsible behaviour and access to quality information.

63. On a cautionary note, however, it has come to light that the GM debate in South Africa needs to balance the interests of the private sector, the farmers, the consumers; but those interests are not always in harmony. There is a high cost of technology development and transfer. It is not simply an issue of developing a technology and then giving it to farmers to adopt. Risk assessment and management techniques must be in place to support the introduction of the genetically modified organisms (GMOs), and to deal with conflicts of interest that may emerge, particularly from environmental and consumer groups.

64. In view of the above, the Government of South Africa has instituted a range of measures aimed at correcting the negative impact of poverty and harnessing the benefits of technological advances. It is for this particular reason that, for instance, the Genetically Modified Organisms Act (Act No. 15 of 1997) was promulgated and implemented in December 1999 with the objective of promoting responsible development, production, use and application of GMOs. To achieve this, the Act aims at protecting the environment and human health through risk assessment and management of each one of the GMOs. All the GMOs are evaluated under this Act on the basis of sound science for human health and environmental safety as well as socio-economic implications.

65. Nonetheless, the stark reality is that currently, very few African countries have the human and institutional capacities to manage risks and win consumers' confidence that these products carry no health and environmental risks. This is a core issue that African countries will have to grapple with before any of the GM crops are commercially released for sale to farmers.

Banana tissue culture biotechnology (Kenya, Morocco and South Africa)

66. Banana, a perennial crop, is both food and fruit in several African countries. The crop is grown in various agro-ecological zones. Constraints to increase its production include, among others, devastating diseases and pests such as Panama disease and black sigatoka (both caused by fungi), banana weevil, and lack of disease resistant banana varieties. The resulting yield losses make banana a relatively expensive commodity for consumers, and reduce cash earnings of producers as well as the potential of the crop to contribute to the food security of rural households. The situation is essentially the same in most African countries. Average banana yield in Kenya is about 14 tons per hectare; less than 30 per cent of the crop's potential under the favourable conditions of the humid tropics.

An example from Kenya of banana tissue culture biotechnology

> "The [banana tissue culture biotechnology] project was formally launched in Kenya in the mid-1997 with a primary aim of contributing to improved quality of life for rural families in the central province of Kenya. The project seeks to positively impact on the lives of resource-poor and small-scale farmers in Kenya in general by increasing the availability of banana both as food and through sales of fruits in the local market — modest income."

67. Banana tissue culture rapid multiplication has been successfully commercialized in Morocco, Kenya and South Africa. Tissue culture banana is free of pests and diseases. In Kenya, for instance, the Kenya Agricultural Research Institute (KARI) has already conducted on-station experiments and on-farm field trials with tissue culture material in the central province of Kenya. In the coming years, the technology is to be disseminated country-wide. The potential effects of banana tissue culture technology at the farm level have also been calculated. KARI itself does not have the capacity to produce enough of the country-wide tissue culture plantlets. To this end, explicit involvement of the private sector in the multiplication and dissemination of this technology is regarded as an important strategy to minimize the need for external financial support in the long run.

68. To be able to quantify the potential agronomic effects of tissue culture banana biotechnology, 25 national and international banana researchers were consulted. In

addition, interviews were conducted with 46 farmers and 10 local agricultural extension officers in the major growing provinces to learn more about banana farming practices and constraints.

69. For the analysis of distributional effects, the banana farmers were subdivided into three groups — small-scale farmers with less than 0.2 hectares, medium-scale farmers with between 0.2 hectares and 0.8 hectares and large-scale farmers with above 0.8 hectares.

70. Cost and income calculations of the current banana production practices have been done for each group (without tissue culture). The evidence shows that adopting tissue culture could bring about a substantial yield increase in all three farm types. In relative terms, the potential gains are most pronounced in smallholders. Using in vitro plantlets not only raises the yields but is also associated with additional costs. Nonetheless, the rising revenue offsets additional costs. Through adopting this innovation, the smallholders could raise their banana income by 156 per cent, whereas income gains for the larger farms would be 93 per cent.

71. One could argue, however, that remarkable income increases could be achieved without biotechnology, simply by applying more inputs and improving the banana cultivation habits. Yet the potential of an appropriately introduced technological innovation to bring a modernization of farming systems should not be underestimated. These findings support the idea that biotechnology can be particularly beneficial for small-scale agricultural producers, who are often suffering from the biggest crop pre- and post-harvest losses caused by biotic and abiotic stress.

72. The move towards commercialization of the crop is under way. An initiative to extend the banana biotechnology project to the neighbouring countries has also been started by KARI and the International Service for the Acquisition of Agro-biotech Applications (ISAAA) in collaboration with national research organizations in Uganda and the United Republic of Tanzania. In the long run, genetically engineered bananas with durable resistance to major pests and diseases might be even more beneficial than the tissue culture for smallholders. There is also an ongoing project at KARI to develop transgenic cp-gene resistant sweet potatoes for Africa.

73. The Kenyan example of banana tissue culture basically demonstrates two things: (a) the potential gains of appropriate biotechnology products can be greatest for the small-scale farmers; and (b) more public research and development funds should be made available to develop biotechnologies that explicitly tackle the needs of resource-poor producers in Africa. The actual impact of biotechnology is not only a question of technological peculiarities, but also hinges on an efficient institutional framework. The successful use of biotechnology, therefore, presupposes extensive capacity-building in the national system of agricultural research and technology diffusion.

74. Overall, therefore, the above analyses of the ongoing development of modern crop biotechnology in some African countries demonstrate the major efforts by the private and public development programmes to establish research facilities that can produce GMOs in the national territory. Nonetheless, much more needs to be done before the GM crops are commercially released in the markets for sale and also before the benefits can be fully realized by both the farmers and consumers alike. The subsequent sections are devoted to the analyses of these kinds of issues.

Policy choice framework for biotech adoption in African countries

Strengths	*Weaknesses*
• Rich in biological diversity • A growing scientific knowledge about the GM biotechnology • Strong partnership between NARS and the CGIAR	• Low investments in public sector agricultural research • Weak scientific expertise to track and map global trends of biotechnology • Weak capacity of the region to participate effectively in the international debate on protocol of biosafety, technology transfer, licensing, etc. • Inadequate public participation in the GM biotechnology debate
Opportunities	*Threats*
• Increased crop yields • Reduced chemical use (e.g., pesticides and herbicides) • Less toxic herbicide run-off to surface and groundwater • Reduced farmer exposure to chemicals • Reduced farm input costs • Increased incomes • Enhanced nutritional quality of foods • Reduced pre- and post-harvest food losses, longer storage life • Minimal exploitation of forests, grasslands, marginal lands, and swamplands for food crops — preservation of biodiversity • Broadening range of crops towards those suited for marginal areas and consumed by poor people in tropical/semi-tropical areas, e.g., pearl millet, sorghum, and cassava	• New allergens • Antibiotic resistance • New viruses • New weeds • Terminator gene prevents reproduction of seed, increasing cash cost • Few private sector monopoly on GM biotechnology research • Lack of scientific and financial support of GMO research from countries where such technology is prohibited • Trade ban on GM export products • Aggravation of the prosperity gap between North and South • Exploitation of natural genetic resources without appropriate compensation • Unresolved matters pertaining to intellectual property rights

75. The *Economic Report on Africa 2001* notes that GM biotechnology has the potential to generate substantial benefits to African farmers and consumers.

However, it cautions that the ongoing public opposition in several industrial countries is likely to persist until pertinent questions regarding the safety of GM crops for people, animals and the environment are resolved.

76. Concerns are wide ranging: (a) consumers' concerns about the immediate and long-term safety of GM foods on human beings; (b) concerns about environmental effects, including risks in the reduction of biological diversity, increasing out-crossing or proliferation of superbugs, gene leakage and the sustainable agriculture using GM seeds; and (c) social, ethical, religious, economic and other societal concerns stemming from the possible impact of the GM crops on the society at large.

77. The Report provides a menu of strategies and interventions that are required. These include, among others: (a) a massive scaling-up of poverty-focused public sector GM research for developing countries; (b) strengthening the role of civil society participation in the GM crop biotechnology debate; (c) regional collaboration in the biotechnology research activities with a view to adapting such biotechnology to cater to farmers' needs; (d) promoting international collaboration in GM crop and animal research; (e) squarely addressing issues pertaining to intellectual property rights.